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Shadows and Straws

GROWTH IS THE natural organic law. It governs all life, forever eluding us with the wonder of its constancy. From seed to plant, plant to leaf, leaf to bud, bud to flower, flower to fruit—and then a new seed falls to earth confidingly. Within the walls of the tiny seeming sepulcher all has been prepared for the perpetual new life. Nothing has been forgotten. Everywhere is law, serene and simple, working to its destined fruition.

But there is another kind of growth that, strictly speaking, belongs almost wholly within the domain of architecture. We use the word growth perhaps wrongly, because in a strict sense there is no organic growth in a building. There is no organic growth in a class of buildings such as go to make up a town or a city. There is no organic growth in the structure of streets or the structure of sewers or the structure of any of the physical members which go to make a community, and yet we speak of city growth, of communal growth, of civic growth, of country growth. We even refer historically to buildings of past centuries as expressive of the growth of those times. Therefore it is very clear that by some process of transmission the needs of men are transformed into physical things which we speak of as growth.

Running through all this kind of life there must be a fundamental law. Cities and towns are, after all, processes of growth, and unless they grow rightly they will grow wrongly; and we do not yet know of any cities or towns that have found the law by which alone they can continue to live. Looking back over the ages we can scan the record of those that have perished. Even the greatest of them have succumbed. Nothing but a heap of ruins marks their site in many cases. What was the law which they denied? What was the law which they could not find? What is the law which we have not found, because in some of our modern cities the seeds of death are already plainly visible, and following the death of cities there has come, in the past, the death of nations. Yes, towns, cities, and nations have lived and thrived and perished. We in our day and time can hardly be brought to admit the possibility that our nation could perish; and yet, if it defies the law of communal growth it will perish like the rest.

IS THIS A NECESSARY PROCESS? Are cities governed by the same law that presides over organic life? Must they pass from seed to bloom and thence to what we call death, in order that the process may go on? We well might think so as we study the records, and yet because the process is inextricably involved with human life, and because we cannot resign ourselves to the suffering and misery and unhappiness of men as they are caught in the toils of this process, we struggle to avert it. Manifestly, then, we do not believe that cities and nations are doomed to the inexorable destiny of living organisms, to the mystery of inevitable birth, oblivion, and rebirth. We believe that there are powers inherent in the life of man (the Great War is testimony to our belief), whereby we can control these things. The history of the legislative enactments of nations, during the past century, offers indisputable evidence of our belief in that power applied through the force of law. We have begun vaguely to perceive that all is far

from well with the process of communal growth, here in the United States as elsewhere, and remedy after remedy has been suggested and attempted, but so far with little avail. The answer is that we have not yet seen our problem as a whole. We have only studied parts of it and by a process of attempted detachment and isolation. We have looked at housing, for example, as a thing apart, and thus we are today, as a nation, immersed in the darkest ignorance as to what housing really means. Likewise we have studied the city as a thing apart and have ignored its social relationship to the country. We have permitted the seeds of national death to be planted everywhere, because we could not and would not see our field as a whole. We are still so sure of our mastery that those who dare to discuss these things fundamentally and thereby point out the defects and mistakes which are so apparent, must risk the shafts of ridicule, or even anger, of those who prefer not to know. The penalty of such knowledge would compel thinking, and most people do not wish to be put to the trouble of thinking. Having tried it once or twice they have learned that it involves work of the hardest kind, and generally leads to things that seem to be inimical to the personal material welfare of the thinker. Not to think is very much easier, and avoids all the unpleasantness of being bothered or upset, and yet the time has come when we must summon Thought to our rescue; when we must unshackle and untrammel our minds and be prepared to follow wherever Thought may lead. Otherwise, thinking is only a flower that dies unborn.

To Whom Shall We Turn for information? I think it must be to the sociologists, to the social analysts. I think we must turn to Ruskin and Carlyle; to Tolstoi and Kropotkin; to Comte and LePlay. They represent a school of thinkers which has for its object the setting up of a new standard of measurements and a new standard of value. They are not concerned with values as expressed in money and property except as these values belong to and are the servants of all people. They on their part have really set men thinking in new terms of value. They have set modern men the task of trying to find a standard of value represented by life-growth as expressed in men and women and children. Roughly speaking, you might say that they put quality before quantity, because for quantity they really care little or nothing. For quality they care everything, and, somewhere along the road which they have built, we shall some day find the law by which alone communities can grow wisely. When we have found the law I opine that we shall have reached a point in our civilization where quality will be first in importance with us—quality in men, quality in things.

We shall, perhaps, have passed through the great industrial age in which we are now struggling. We must pass through it or out of it, or else we must transform it. The Great Production Machine now has us in its clutches. Its appetite is inappeasable. It can never be satisfied. Its clamor for quantity alone is the world's greatest illusion. It began by calling for coal, then for iron, for wood, for cotton, and for every kind of raw material, and we fed those things to it faster and faster; then it cried for men and we gave them; then it cried for women and we gave them; then it cried for children and we gave them too. It is only a few days ago that one of the Japanese who was attending the International Labor Conference at Washington told me that the Japanese Labor Party was determined to secure an eight-hour day. Why? Because an eight-hour day would force Japanese industry to employ labor-saving machinery. At present it finds it cheaper to work children eight years old fourteen hours a day! So you see the industrial machine is not entirely a question of machinery or of smoking chimneys and hideous noise. It is a question of quantity production obtained at the expense of life itself. Somehow or other we shall have to learn to master the Great Production Machine.

In the Philadelphia *Public Ledger*, of October 31, I read the following words in an editorial concerning a conference which was then being held in Philadelphia: "It is all very well to discuss the everlasting virtues of Letchworth, England, a very much overrated Garden City. . . ." I should say that it would hardly be possible to reveal a greater ignorance than this in connection with the subject of how cities grow and how cities ought to be planned in the future. But I opine that the writer of this editorial did not mean what he said. He was no doubt tired and impatient after attending an interminable session of an interminable con-

ference, where men talk round things and not straight at them. But as to the remark in question, I would answer that Letchworth was the most important experiment ever made in the science of community building. I would say that no effort of any kind, anywhere, at any time, along this line, had borne such fruit as you can now find in the legislative enactments of the progressive nations of the world. Unhappily, the fruits of Letchworth are not yet visible in any state in this country, although we have certain permissive laws under which knowledge supplied by the Letchworth experiment might be made applicable to our problems.

What is the Letchworth idea? It has been very much discussed. It probably has been overrated by the enthusiastic and the ignorant. It has undoubtedly suffered from a mistake in the primary plan. Its founders sought to find the law which governs wise community growth? I think they found that law, and the mistakes they made in their plan were wholly natural and are by no means vital. They will be corrected in the next Letchworth, the plans for which are already being drawn. What is the Letchworth idea and why does it exemplify the law of growth in communities? Letchworth is called a "garden city," and that is very rightly an excellent name for it. But the name "garden city" has been bandied about by reformers until it has fallen somewhat into disrepute. Yet Letchworth, after all, is founded on the principle that agriculture and industry should balance each other in the community. That we should not herd industry together in one great community where everything is sacrificed to the Great Industrial Machine, and then leave agriculture to the isolated countryside where there would be no communal life. Letchworth embodies the principle of giving workmen a contact with the land, and of giving farmers a contact with the community. That, in brief, is the Letchworth idea, and I believe that it embodies the law by which alone communities can grow wisely. Under that law they cannot grow large, but we do not want large communities. Every large community that man has built has perished and every one will perish, because they utterly deny the social life of mankind.

Look at the Question from the economic standpoint. No businessman tries to see how he can increase his transportation charges. On the contrary, he tries to see how he can reduce them. Yet, in the United States, it is a common belief that the more money we spend for transportation the richer we are becoming. But the truth is quite the contrary. Frankly speaking, it might be said that all transportation is waste. Potatoes are no better for having been carried across the continent and cotton cloth is in no way improved by a three-thousand-mile journey. Exigencies of climate and soil compel a certain amount of transportation, but, in a nation which kept a proper set of books from which a proper trial balance could be drawn, I am sure that its financial advisers would study how to decrease the amount of transportation, not how to increase it.

Letchworth is based on the principle that the less transportation of goods the better. Every man who lives in Letchworth may have a garden if he wishes, while working in any of the forty industries that are there now established, and a part of Letchworth is set apart for farming of all kinds. Thus the food question in a very large measure does not involve a huge waste in transportation. Correspondingly, it permits those who farm to have access to a community which has already attained a population of over 12,000. Add to that the fact that Letchworth is built on the self-owning principle, with private ownership of land prohibited, and you have the whole principle of the Letchworth experiment. Instead of being much overrated as the *Public Ledger* so bravely states, I predict that there will be thousands of Letchworths in the United States before this century comes to an end. We have had them here, in embryo, in the early days of American industry in New England. I know one that still exists. We shall return to them, some day, for that I believe is the right law of communal growth.

You Cannot Defy Science. You cannot cheat the Truth. You cannot build permanently on a rotten foundation. Man is a social being and the law of his social needs must be fully observed if we would really build a nation great by reason of the quality of its life. To seek to build it on the quantity basis means that we shall pass as Tyre and Sidon passed. There are forces which are stronger than banks and governments. There are forces which today mock at

the technique of city planning, because they know their power. Sadly enough, there are few city planners who are aware of the forces that lie behind the building of towns and the growth of nations.

Once before in these pages we discussed the program of What To Do. It is so easy to find people who can tell you how to do anything but so difficult to find anybody who can tell you what to do. Curiously enough, the Cities Committee of the Sociological Society of London, which is today publishing literature on reconstruction of surpassing interest, has constructed the following program, which it entitles "What To Do":

Our faith is in moral Renewal, next in Re-education, and therewith Reconstruction. For fulfilment there must be a Resorption of Government into the body of the community. How? By cultivating the habit of direct action instead of waiting upon representative agencies. Hence these social imperatives:

1—Cease to feel Labour personally as a "burden," or see it socially as a "problem;" practise it as a primary function of life.

2.—Raise the life-standard of the people and the thought-standard of schools and universities; so may the workman and his family receive due meed of real wages; the leisure of all become dignified; and for our money-economy be substituted a life-economy.

3.—Stimulate sympathetic understanding between all sections of the community by coöperation in local initiative; so may European statesmen be no longer driven to avoid revolution by making war.

4.—Let cities, towns, villages, groups, associations, work out their own regional salvation; for that they must have freedom, ideas, vision to plan, and means to carry out, (a) betterments of environment (such as housing fit for family life and land for a renewed peasantry), (b) enlargements of mental horizon (such as forelooking universities quick with local life and interests,) (c) communitary festivals and other enrichments of life. All these must be parts of one ever-growing Design for the coming years to realize.

5.—Make free use of the public credit for these social investments; but don't pay the tribute called "market rate of interest;" create the credit against the new social assets, charge it with an insurance rate and a redemption rate, and pay the bankers a moderate commission to administer it through their system of interlocking banks and clearing houses; the present unacknowledged use of the public credit by bankers must be recognized and regulated, and being for private profit must be subordinated to the new communitary uses.

6.—Fill the public purse from a steeply gradated income-tax (proceeds being shared by the local with the central authority); discriminate in favour of investments that improve the environment and develop the individual. Let the tax-gatherer take heavy toll of "unearned increments," such as the "bonus" to shareholders, the appreciation of speculative securities, the rise in land values from growth of population.

7.—Eschew the despotic habit of regimentation, whether by governments, trusts, companies, tyrants, pedants or police; try the better and older way of coördination expanding from local centers through city, region, nation, and beyond; so may the spirit of fellowship express itself, instead of being sterilized by fear, crushed by administrative machinery or perverted by repression.

8.—Resist the political temptation to centralize all things in one metropolitan city; seek to renew the ancient tradition of federation between free cities, regions, dominions.

9.—Encourage the linkages of labour and professional associations across international frontiers; it is these that can quicken the unity of western civilization and bring forth its fruits of concord. Further, let our imperial bureaucrats cease from their superior habit of instructing the orientals and try to learn from them.

10.—In general, aim at making individuals more socialized and communities more individualized. To that end, let schools subordinate books to outdoor observation and handicrafts; let teachers draw the matter and the method of education from the life and tradition of their pupils' own region, as well as from the history and culture of mankind at large. Let universities seek first for synthesis in the civic life around them; and only thereafter in the pages of philosophy. Above all let governing bodies learn, if not from the churches, at least from the psychological and social sciences, the distinction between temporal and spiritual powers, and cease to play the double rôle of Pope and Cæsar. As for the chemical and mechanical sciences let them repent of making hell-upon-earth under war-lord and money-lord, and take service in the Kingdom of Heaven on earth. Then may the machine industry learn from artist-crafts-

man and town-planner the social significance of Design in all human things, including the city itself; that way lies the guild ideal and hope of its expressing the civic spirit. Let civic designers give rustics access to the city as well as townsmen access to nature; that way lies the regional ideal; and some day men will enter through this portal into paradise regained.

Along all these lines there is movement; but lacking in volume and unity. A crusade of direct action has long been afoot; but with many halts and in sparse and isolated companies. The Spirit Creative is liberated and in flight; but too timidly and on dissevered quests. It is time for clearer understanding, closer coöperation, deeper unison between all men and women of goodwill and high endeavour. So may be prepared definitely planned campaigns for the making and maintenance of worthy homes, smiling villages, noble cities. To engage the militant energies of the race in these adventures of constructive peace and heroically to salve the perennial wreckages of humanity would be the moral equivalent of war.

Here is a program which is a challenge to Thought, a basis for Education, a concept of Peace. It is built on the principle that Life is more precious than the Great Industrial Machine, that Art is latent in all humanity, and only needs freedom in order to bloom again in Architecture as in every other form of communal growth, and that Human Brotherhood is the goal of man. To follow such a program you have only to throw away Fear and Hatred, the twin satans that now shackle the mind of man and bear him on the tide that leads to oblivion.—C. H. W.

MR. THOMAS ADAMS, whose work for the Canadian Commission of Conservation has placed Canada well in the front among those progressive nations which do not fear to be honest in talking about the housing problem, contributes an article in this number of the Journal, in which he thoughtfully analyzes the relations of industry to homes and land and architecture. Mr. Ackerman likewise adds, in a shorter article, an illuminating penetration of the fallacy of attempting to make city plans while basing what are called "fundamental principles" upon the premise that "normal tendencies" in city growth must not be disturbed. This paradoxical preachment has reached a point where its spokesmen should be called to account. We can no longer afford to have our cities and towns deluded into the preparation of a plan, at huge expense, and based upon the idea that the misuse of land can continue unchecked. There is no possibility of making a city plan beneficent unless the community fearlessly accepts the principle of land-control for the benefit of all.

AT THE HEARING IN COMMITTEE on the Tinkham Bill providing for the creation of a Bureau of Living Conditions, Mr. Milton B. Medary, Jr., represented the Institute and spoke, in part, as follows:

"The rapid growth of slum conditions in the congested areas adjacent to large markets for labor is a national menace which cannot safely be left to such meager control as now results from occasional local legislation, generally confined to establishing very low minima of housing and living conditions, and rarely adequately enforced.

"The Tinkham bill offers an opportunity to undertake constructive research and experiment, looking to the isolation of this germ of disease in the body politic, maintaining it in quarantine, and eventually destroying it. It offers the opportunity of conducting such work with public funds belonging to all the people interested, and eliminates the paternalism suspected by the employee as the motive for any interest in housing and living conditions on the part of his employer.

"These congested areas now produce great numbers of criminals, insane, and unfit, and we are meeting the situation with more courts, corrective institutions, asylums, and hospitals. We legislate against the admission of these classes to our shores, and at the same time tolerate conditions which must and do produce them as native-born citizens.

"The children born in this environment are the citizens of a few years hence. You are their representatives in the American Congress. Yours is the opportunity to determine whether or not the conditions under which they must develop their lives is now affecting, or will in the future affect, the morale of the nation, by authorizing the study of their environment as a function of the Federal government.

"The number of families which may be housed

on a given area of land without depriving them of light, air, and space for recreation, the rise in the value of the land by housing a large number of families on a small area, and the effect of this high value in prohibiting a return to less-congested use of the land are some of the phases of the problem which demand the most careful and disinterested consideration. The Department of Agriculture has done much to inform the American farmer of the relation between the intelligent use of land and the sustained value of its products. It would be one of the functions of a bureau of housing and living conditions to determine the extent to which land values may be developed at the expense of the physical, moral, and mental welfare of those who live upon it with the consequent charge against the whole community. Cannot such a bureau parallel the service rendered by the Agricultural Department to rural populations by informing urban populations of the consequences of unintelligent abuse of land versus its legitimate development?

"As an example of conditions as they are developing throughout the country, I have in mind one of the smaller cities in Pennsylvania, which came under my observation while conducting one of the housing projects for the United States Housing Corporation. This city, founded by a religious sect on communal principles, maintained its characteristics as a green village with ample open space and planted areas available for every family for nearly two centuries, but in spite of those traditions, the rapid growth of a great industrial plant has recently resulted in the creation of a blighted area in which overcrowding and the destruction of decent living conditions go on unchecked."

THE BOARD OF DIRECTORS met in New York City for three days, November 11–13, and an account of the meeting will later be made available to members of the Institute. As we go to press it is only possible to touch upon some of the more important subjects discussed at a meeting which was replete with questions deep in their portent. It required more than one session, for example, to complete the details of the establishment of the Press of the American Institute of Architects, the principal business of which will be the publication of the Journal, but which will also undertake the publication of books and other literature devoted to the advancement of architecture and the allied arts. There was an enthusiasm and an unanimity on this question, when the last details had been disposed of, which augurs well for this new departure; the Journal will be considerably expanded, at an early date, and will take another great step forward in its ultimate plan.

A circular explaining the proposed change in name has already been sent to members of the Institute, and the hundreds of replies received up to the time of writing, indicate the extent of the interest with which the Journal is regarded. Of course, there are many minds on the question of a name, and there is an evident reluctance on the part of many to see the name changed at all. We hope to be able to announce the result of these considerations in the next number.

DRAUGHTSMEN'S UNIONS was one of the questions to which the Board devoted considerable time, and the discussions, in which every Board member participated with a full consciousness of the issues involved, crystallized in the following resolution:

The Board of Directors of the American Institute of Architects has been informed that movements are on foot in several parts of the country for the organization of Architectural Draughtsmen's Unions, and it has been asked to express its views with regard to such unions.

The Board of Directors recognizes the natural desire of men to join in vocational organizations for beneficial purposes, and it favors the organization of everyone connected with the profession of architecture, either as employer or employee, in associations which have the object to improve the qualifications of their members and their opportunities for service. It believes that, both for the architect and his assistant, a more adequate financial reward will come with the better quality of the service rendered. The Board disapproves, on the other hand, of any affiliation of such associations with industrial unions which might endanger that sense of professional obligation for service to the public which is the foundation of architectural practice.

IN TALKING ABOUT CONTRACTS under the present disturbed conditions of the building industry, the Board unanimously concluded in recommending to the Committee on Contracts that it consider a suitable supplementary clause to the General Contract Documents of the Institute, providing that the contractor be protected against extra costs, during the life of a

lump sum contract, due to raises in wages over and above the estimated costs of this element, an itemized statement of which should be appended to the contract. A somewhat similar proceeding has been adopted in England and is described elsewhere in this issue, although the contractor, under the English method, is also given a chance to benefit under legitimate savings effected.

FELLOWSHIPS AND THE METHOD of nominating Fellows again gave the Board serious ground for reflections. There has been growing up a considerable discontent with the system of nominations, and the Board has for some time been aware of the fact that the methods which have prevailed are no longer workable to the entire satisfaction of the membership. There are many differences of opinion as to how Fellowships should be awarded, and one needs to consider only one of these, for example, to see how perplexing is the problem. There are Chapters which believe that the Jury of Fellows should not have the power to make nominations but only to accept nominations from the Chapters, while there are other Chapters which take the ground that a Chapter should have no voice whatever. As a result of the discussion at this meeting, the Jury of Fellows decided to make no nominations for the next Convention, and the Board thereupon resolved upon the creation of a special committee to make a study of the whole question. For the good of the Institute, nothing could be more advantageous than such a thorough and careful study of this problem, which lies at the bottom of that cohesion and solidarity in membership upon which the Institute utterly depends for growth along lines of increasing strength and influence.

In this connection it seems interesting to recall the history of Fellows and Fellowships in the Institute, as published in the Journal for February, 1919, and to reprint the summary of that history, which was as follows:

"A reading of this digest is sufficient to indicate the problems which lie in wait for those who would contrive a method of bestowing a distinction upon a class of members, in a professional body, which shall never work an injustice. The problem ought perhaps to be examined fundamentally, when one would ask the question—is a membership distinction a source of weakness or of strength? If it is a source of strength, how can it be conferred so that the preferments will always be just and every member treated fairly? Limiting the number is unfair, since it arbitrarily imposes a hazard—the hazard of living—in order to obtain what one may be justly entitled to in comparison with the ability or merit of those upon whom it has been conferred.

"Trying to raise the standard, at any time, always imposes an injustice, since it deprives a certain number of men from gaining a distinction upon the same basis on which it was conferred upon those who had the luck to come earlier. In simple justice, it must be clear that once a basis of fellowship is established, all those who pass the qualifications prescribed shall be made fellows.

"To arbitrarily fix the number which shall be admitted in any given year imposes a hazard and an injustice, for the selection then has to be made upon some basis which shall appear to be the fairest. If fifty men meet the requirements at any time, they should in all fairness be treated alike. Otherwise, the injustice falls, not only upon them, but, in so doing, carries with it the temptation to make selections diplomatically and without regard to actual degrees of merit.

"In certain societies, fellowships have fallen into such disrepute that men of any standing whatever would never think of using the designation after their names, for in the scramble for membership, restrictions were broken down until willingness to pay the extra fee demanded was the determining factor.

"The problem is as old as the hills, but it takes on a new and more insistent character as social customs change, organizations grow, and the problems of professional practice become more and more involved in the turmoil of restless change and evolution. In the United States, for example, to fix an arbitrary standard for fellowship in the American Institute of Architects, is almost impossible, since conditions vary greatly throughout the country. That is to say, the standard in New York City, or Chicago, or other metropolitan centers, would naturally be higher than in certain other localities. Opportunity is here a factor.

"Yet the effort to establish the fellowship upon a just and equitable basis can be seen to have passed through many experiments. If fellowship is a source of strength, the problem should be met with all of these facts plainly before those whose duty it is to solve it. It is possible that there is no just method of at one and the same time conferring fellowship for merit and maintaining it upon the high plane where it should be kept—or it is possible that it is a necessary thing which can only be maintained through the tacit consent of the many to sacrifice themselves for the few, as a means of advancing the prestige of a calling."

THE NEXT CONVENTION of the Institute was fixed for Washington on May 5–7, 1920.

ONE INTERESTING REPORT was that of the Small House Committee, of which E. H. Brown is Chairman. The Committee presented for the consideration of the Board the proposed establishment of a national clinical service, in which the members of the Institute should coöperate in the preparation of plans for small houses, under the auspices of the Institute, but with regional administrations. In effect, this plan pro-

vides for a public service along clinical lines, and is based upon the belief that the profession of architecture should find a way to make architectural service available for those who cannot otherwise pay for it, just as other professions have already done. Naturally, a departure as radical as this requires the most careful consideration, but the Board indorsed the principle involved and referred the matter back to the committee, for discussion with other committees, and for report to the Executive Committee, at an early date, as to further details.

THE RUSKIN CENTENARY Exhibition at the Royal Academy in London has evoked an unstinted measure of praise in the English press. Once again the people of England are stimulated to an appreciation of one of their greatest geniuses, for Ruskin would have been known by his drawings if he had never written a line about architecture, even though no writer has yet succeeded in making architecture live in literature as Ruskin did. But here was a man who was not a professional, nor an artist in the sense of a vocation, whose life was crowded with a host of activities, and yet whose fame would rest forever secure upon the drawings in which he sought to record, for his fellowmen, the facts of nature, the theories of artists, the inventive genius of builders, the sheer art of workers who were industrially free to exercise their creative spirit.

Also it is to be remembered that Ruskin would have established his place in literature even though he had never written "Master Painters," or "Stones of Venice," or "The Seven Lamps." Had he written no single word about Art, the world could never forget "Unto This Last," and it is interesting to know that while the present exhibition contains a copy of the luxurious Doves Press edition of this work, there rests by its side a copy of the penny edition of the same book.

Some of the best of the Ruskin drawings have been published in the Journal, and their names appear in all of the criticisms of the exhibition. In addition to these, however, there have been collected many interesting manuscripts, maps, water-colors, pencil studies, and personal possessions. One room is also devoted to the work of William Morris, the greatest of Ruskin's disciples. Altogether, this centenary commemoration seems to have been carried through with a reverence and appreciation such as Ruskin would have deemed a fitting reward for his unceasing labors.—C. H. W.

Industry, Homes, and Architecture

By THOMAS ADAMS*

"*Blessed is he that continueth where he is.*"—THOMAS CARLYLE

The Drift to the City and Coöperation in Industry

The new light which recent events in the world's history has thrown on modern social and industrial problems, causes us to look with more respect than hitherto on the ideas of some of the English philosophers, whom we have been too prone to regard as visionaries. We are only now beginning to appreciate the general practicability and sanity of men like Carlyle, Ruskin, and Kingsley.

Among the facts that Carlyle deplored as being at the root of the evils of his time was the absence of permanence in the relations between master and man in industrial society. He was concerned with what is now called on the American continent, the "labor turnover." The constant coming and going of workmen from one job to another, with all the waste and inefficiency it produces, has been one of the chief weaknesses of industrial organization.

This migratory tendency of labor is seen in modern times, not only in the drift of population from the country to the town, or from one industrial region to another within different countries; it has become in recent generations a great international and even inter-continental movement. The laborer claims that the mobility of labor is a good thing, and resents legislative interference with his freedom of movement.

That there is a loss of efficiency to the manu-

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facturer by the constant turnover of labor seems undoubted, but that labor would earn greater rewards if it were less prone to movement and to change of location seems, to say the least, doubtful. The greater stimulus to improvement and to individual development comes from equality of opportunity coupled with the willingness to take the risk of testing new opportunities. A man's efficiency may depend as much on getting work which is congenial to him as on getting work in which he is experienced.

The lack of permanence or continuity of labor in one field might be more injurious under a copartnership system, but, as things are, the freedom of labor to seek new opportunities is essential to progress in spite of the losses that result from labor turnover. Anything that would tie down a man to a district or an industry against his inclination or will cannot in the end produce the best social results, although anything that will encourage him in a condition of free-will to give continuity of service and seek permanence of settlement must be good. What we have to do, therefore, is not to impose barriers to prevent workmen from seeking change but to create opportunities and encouragement for them to resist it.

Transportation and Housing

Transportation and housing have both a bearing on this problem of mobility of labor. Since Carlyle's day the migratory movement has been accentuated by improved means of transportation—by sea, rail, and road. Distances have been greatly shortened in the matter of time, and traveling has become comfortable. The telegraph and the telephone have created links between distant parts and made people less reluctant to separate themselves from their local associations, if they have found that by doing so they could gain some material advantage. Locally the effect of improved transportation has had an exceptionally strong tendency to promote mobility. A man may live ten or even twenty miles from his place of employment if he has fast and cheap methods of transportation. From his suburban home he has command of perhaps a score of places of employment within an equal radius and equally convenient of access. Formerly loss of a job caused the worker in most cases to remove the location of his home.

Whether or not a workman is owner or tenant of his home may also discourage or encourage mobility. Home-owning may do a man good by compelling him to stay in a district against his desire for "change for mere sake of change," but it may do him ill by preventing him from moving where he can get better opportunities. On the whole, home-owning has probably more disadvantages than advantages to the workingman, considered from the point of his money-making value. Where it confers a benefit on the manufacturer by giving him steady and "tied" labor, it may confer an equal injury to the worker. A man may be as much injured by being tied down to an employer by a mortgaged home as by the shiftlessness which may accompany a system of tenancy. The fact of being tied is bad—not home-owning in itself. But while a man may have much more freedom of movement as a tenant than as an owner, the "permanence" which Carlyle regarded as so desirable is promoted by ownership. But to obtain that result Carlyle recognized that the worker had to be granted a permanent interest in the enterprise in which he was employed. *If home-owning is going to be continued it must be accompanied by stable industrial conditions, and such conditions cannot be obtained until there is real copartnership between the different forces that make up the industrial organization.*

Early Industrialism

The mechanical spirit of England in the first half of the nineteenth century, so vigorously deplored by Carlyle, has its counterpart in the mechanical spirit of modern times in Anglo-Saxon countries. Our utilitarianism is not carried to such extremes as formerly. The growth of education and improved opportunities have developed a higher consciousness of the worth of the workers and more respect for the spiritual forces in society. We do not dare, even if we would, indulge in such brutal methods of exploitation of human life as did the Manchester school of the middle of the last century. But many of our captains of industry still regard the world as their special preserve and the workers as being sent to minister to their comfort and create their wealth. Our utilitarianism is less brutal and more respectable, but it is probably a stronger force than ever. The housing con-

ditions of the poorer sections of the population in our great cities provide the evidences of the failure of political and industrial leadership, just as much as they show the weaknesses of human nature. People are still "huddled together in towns in filthy dens like wild animals," notwithstanding that we enjoy the advantages of the parliamentary reform and the freedom that were once thought to be the only obstacles to improvement in housing conditions.

Housing Standards

"Wherever you see want, or misery, or degradation in this world about you, there, be sure, either industry has been wanting or industry has been in error," said Ruskin. He would say that the slum is the effect of defective industrial organization rather than the human frailty of the person who lives in the slum, and that the latter, so far as it is a cause of slum conditions, was first an effect of the former. Yet how many leaders of industry look down on the slum resident as being the victim of his own shortcomings and nothing more. "But," says the American captain of industry, "I did not create the environment which was among the first causes of the low standards of the Slavs and the Italians. They came to me in a condition ready to adopt these standards." Is it all we can do then to let these people bring their standards with them? First of all, the class of immigrant is governed by the demand for low-priced labor, and low-priced labor means badly housed labor. Surely, however, we should make a better selection of immigrants, and, having done so, we should impose our standards on them. Unfortunately, our own standards for the same class are no better than theirs.

The Employer and Housing

No study of the housing problem would be complete which did not take into consideration the question of the extent to which an employer of labor should take an interest in the housing of his employees—whether as a matter of enlightened self-interest or as a public duty to the society which affords protection to his industrial organization and capital. The answer to this question cannot be given by merely stating that, as a business matter, the employer will gain from better housing conditions, or that, because it will be a gain to him, therefore he should assume responsibility for seeing that his workers have good living conditions as well as good working conditions. The question has numerous side issues, each of which raises a difficult problem. The resentment of the laborer to interference on the part of his employer with his mode of living suggests one of these problems; and another is the objection of the former to the paternalism which is apt to accompany the housing schemes of employers. A third difficulty is that most workers live in large cities, and the segregating of the workers in any one industry in one locality, to make supervision by the employer practicable, is often impossible, even if such segregation were desirable.

Fundamentally, has the employer any responsibility to house or control the housing of his employees in a free country? Apart from the discharge of our duties to society and of our legal obligations as citizens we are—whether employer or employed—entitled to pursue our several opportunities unhampered. If we have had equality of opportunity we have hardly reason to grumble against a fate which leaves us among the poorer classes of society. Given justice, we cannot object to natural inequalities. Given rights, we cannot claim freedom from responsibilities.

Now when we think in terms of the responsibilities of the manufacturer to house his employees, we must have regard to the rights of the employees themselves. Will they, by giving up to the manufacturer part of their responsibility as citizens to see to their own housing conditions, also have to give up part of their rights as citizens? It seems inevitable that if a manufacturer takes upon himself the duty of housing his workers he must limit their rights according to his ideas of what is good for them.

Let us think for a moment what would be the most perfect relation between employer and employed. Would it not be one in which the employer acted as the chief executive and organizer of the business; where both he and all the workmen were paid equitably according to their productive capacity, and where all profits, after such payment and after a moderate return were made for use of capital were equally shared by everybody in the business; secondly, where the factory conditions were healthy and the working hours moderate; and, lastly, where the worker was entirely free to live his own

life in his own way outside his working hours? If under these conditions a worker failed to provide proper housing conditions for his family it would either be due to his own defects, for which he would be responsible, or to the defects of his education or social organization for which society as a whole might be responsible.

As a matter of responsibility, what duty devolves on the manufacturer that does not devolve on every other employer, and if we were to make manufacturers build houses for their workers, why should not governments, store-keepers, and all other employers do the same? Assuming, then, that we carry this to its logical conclusion, should we have a desirable condition, even if we had a comparatively higher standard of housing? Every employer would have a greater hold on his employees, and every employee would lose certain liberties as the price of his reliance on his employer for his home.

But someone says, Why need the responsibility of the employer be accompanied by his rights to control? Surely nothing could be more obvious. If it were not so the manufacturer must sell the houses he builds to his employees, and if he did so he might find that, soon after he built the houses, they were all sold or let and none of his employees were living in them. His only chance of carrying out his responsibilities would be to exercise his rights to arbitrary control of the houses, both as regards occupancy and condition. It is not practicable, therefore, to make manufacturers or other employers build houses and secure better living conditions on the part of their work people, without interference with the liberties of the work people during their free hours and without creating an undesirable form of tie between the laborer and his work.

We must, therefore, in the interests of freedom and from the point of view of society, reject the solution that the employer can be made responsible for improving housing conditions, as a general rule.

It is only as a matter of expediency in his own interests, or as a matter of philanthropy, that employers are likely, or should be encouraged, to take an interest in housing their employees. All the model housing schemes of manufacturers come within one of these categories, or, in part, of both. Bournville and Port Sunlight, model villages in England, are good business investments. It happens that the generous-minded and public-spirited men who created them were also philanthropists and gave liberally of their own substance, either in the form of architectural ornament, parks, public baths, or institutions, for the benefit of their employees.

These schemes also proved that it paid manufacturers to remove their works out of crowded cities and erect them on cheap land in the country; that it was a benefit to purchase enough land to enable them to plan and develop a model village around the works. In this latter respect they were using their business capacity, not as manufacturers, but as land-owners and as controllers of building operations. They were not discharging their responsibilities as manufacturers but showing how the municipality and the builders between them had failed to discharge theirs as the providers of dwellings. Even with all their advantages, these schemes are resented by some workmen as paternalistic.

And here we come to the point. The responsibility for good housing conditions cannot rest on the individual because, in the first place, the individual cannot control more than his own lot and home, and, in the second place, it is essential that the minimum housing standards should always be on a higher plane than the lowest strata of society. If we want to improve housing standards, then the poorest homes in the city must always be better than the people who live in them want them to be; otherwise we shall always be bending downward toward their standards instead of drawing them upward towards ours.

Nor can the responsibility for good housing be placed on the manufacturer or other employer however much we may welcome model housing schemes carried out through such agencies.

All the houses that are required may be built by individuals or private firms—and perhaps there is no better way in which to have them built—but the responsibility for good or bad conditions rests entirely with the public authorities. Control of standards, the prevention of bad living conditions, the enforcement of public health provisions, the erection of houses where private enterprise fails, and all phases of the housing problem are matters for government leadership and administration.

Where the manufacturer fails, when he does

fail, in regard to this matter is not in his capacity as employer, but as a citizen. He too often stands aloof from public reponsibilities. It is not his duty to house his work-people, although it may be his pleasure to do so, but it is his duty to take a keen interest in the governing authority on whom that responsibility rests, and to pay his full share of taxes to enable the authority to discharge that responsibility.

How often we see large manufacturing cities without a single manufacturer of standing on the city council! and how often we see the manufacturers, when on or off the city council, obstructing money legislation which is intended to provide better housing or sanitary conditions! The responsibility of the manufacturer for better housing is therefore an indirect one, and he should be made by some means to discharge it.

There are, however, some cases where manufacturers are distinctly responsible for housing their work-people—in connection with mines and with factories erected in isolated rural areas. Some of our worst housing conditions in Canada are to be found in towns like Cobalt, where the mine-owners have been allowed to neglect their responsibilities. Great fortunes have been made out of these mines. Those who made them should have been compelled to disgorge a small percentage to enable proper housing accommodation to be provided. Here, again, however, it is the lack of *government* control that is to blame—not the mine-owner.

Unfortunately, the modern tendency of the big employer is to regard himself as free from responsibility, even in an indirect way. He makes a large fortune out of works in which the wages paid are inadequate for good housing. He then spends the fortune in providing libraries, parks, and institutes to educate the children that have been brought up in the slums of his own creation. It is the old evil about which Ruskin speaks so forcibly in *Fors Clavigera* in addressing the working classes: "The vile modern notion that you are to be crowded in kennels till you are nearly dead, that other people may make money by your work, and then to be taken out in squads by tramway and railway to be revived and refined by science and art. Your business is to make your homes healthy and delightful."

To Ruskin it was the duty of the state to see to these things; to let in light to poor rooms, back streets, and crowded alleys.

Coöperation Is Constructive Individualism

It has been one of the blunders of British policies that insufficient weight has been given to the teaching of Carlyle and Ruskin. Many people before the war despised both these seers with the same enthusiasm that they worshipped the now discredited German materialism. In the western hemisphere this preference for narrow utilitarianism has been also much in evidence. Care for the development of humanity, whether in the individual or in society, has long been qualified in England by the powerful selfishness and class distinction of vested nobility; in the western hemisphere the same disregard of the things that make for human growth comes from an undue worship of riches and of the kind of success that consists in achieving riches.

Dr. Shadwell, a publicist of much weight and influence in England, gave long quotations in the concluding chapter of his book on "Industrial Efficiency," published in 1906, which showed how much even he really misunderstood the "natural failings" of England. He quotes without condemnation, among others, the candid German critic thus:

"The young man or woman leaves the primary school in England with no idea of duty and no knowledge that the position of your country was won by the sacrifices of past generations of war, or that war is still one of the means by which progress of the race is maintained. . . . It is within my own knowledge that wages have recently risen in England to a degree beyond the advance in productivity so that your labor is paid more and produces less."*

So we are to believe that the sober truth about the national weakness of England is that she did not follow the lead of German "Kultur" and worship war and low wages with their combined effects of creating poverty and slums.

Efforts to improve the wages, standards of comfort, and to remove the impediments to opportunity which are caused by class distinctions have always been received with denunciation by advocates of utilitarian individualism and bureaucracy. To such men the interests of

*The National Review (June, 1905).

property are always more sacred than the interests of human life, and the distinction between coöperation and socialism is not understood. Both are pooled together as antagonistic to individual development by those whose concept of individual development is that of developing the individuals of a class—a class which they sincerely believe to possess divine attributes to lead and rule. This idea is no less pernicious because it relates to a class than it is when it relates to an individual of the stamp of the Kaiser.

Coöperation, as distinct from most forms of socialism, is constructive individualism. It is the force that is needed to give unity without destruction of individual initiative and to create reform without dependence on governments. All great reformers have seen that individual reform and coöperation are of greater importance than legislative reform. Some of them were not practical enough to see that cooperation needed the stimulus of legislative approval and encouragement; but even Ruskin, with all his idealism and dislike of too much government, said: "Government and coöperation are in all things the laws of life; anarchy and competition the laws of death."

One of the most common arguments of the great industrial organizers who have made their wealth as the heads of great trusts is that the development of successful commerce depends on competition because thereby individual initiative is best promoted. Labor unions and coöperative societies are regarded as evil things because they are presumed to lessen this initiative. But surely the objections to organized labor and coöperative institutions raised by the heads of great trusts is inconsistent. Are these capitalistic trusts anything else than coöperative enterprises? Why should coöperation not be sound in principle for the workers as well as the leaders of industry?

Rapprochement of Town and Country

The promotion of coöperation as a government policy should relate to the bringing together of the town and country as part of an industrial whole, as well as for purposes of developing separate industrial organizations. The lack of regard for the importance of maintaining an equilibrium between town and country is the source of the difficulty of building up and maintaining a farming population of adequate proportions to the town population, and leaves a permanent problem in all countries. With the need of more men on the land in the United States and Canada, and with the menace of overcrowding and unemployment in the cities and towns confronting us if any considerable immigration takes place into our crowded centers, we seem about to enter upon another period of endeavor to promote rural development by means of artificial stimulus. For centuries the same problem has confronted the Anglo-Saxon race, and the same methods of dealing with it have been tried time and time again with little permanent success. The Peasants Revolt of the fourteenth century in England was the outcome of the efforts of the powerful land-owning class to tie the laborers down to the soil against their will. In "Utopia," written in 1515–16, Sir Thomas More protested against the decay of arable farming as compared with pastoral industry in his time.

As a commentator on More's writings points out, More was one of the first to recognize that the question of over-population was not one of quantity but of locality. Shifting of centers of population has been going on since the world began. More did not deprecate mere increase of population, but the absence of measures to secure its proper distribution. Writing of social injustices, he might have been describing the American continent when he said, "While people talk of a commonwealth, every man seeks only his own wealth."

In the early nineteenth century the servitude of the farm laborers and tenants was no worse than that of the factory workers. This servitude in town and country was defended as vehemently as the slum dwelling or the sweating system is today by the interests that enjoy profits from them. The proposals to stop overworking and demoralization of young people in factories were denounced, and there was talk of the "pernicious tendencies of all legislative enactments upon trade and manufacture." The same arguments have been used and will continue to be used against every effort to improve social conditions. "Liberty of the subject" and "freedom of contract"—these precious phrases that have been made the bulwarks of slavery from time immemorial—are still the main props of its defence. At the very time,

no more distant than 1831, that England was aroused to white passion against negro slavery in America, she was authorizing slavery of the vilest type among her factory workers, and women and children were beaten with thongs and degraded by excessive hours and low wages.

Robert Owen sought to counteract these extremes by going to the other extreme of ideal socialism, and failed. But while his communistic enterprises came to naught, his cooperative schemes had in them elements of success and permanence that have been of lasting benefit to the working classes of England. Coöperation, unlike socialism, recognized practical conditions and the power of individualistic effort and worked through them.

About the same time Charles Kingsley and Frederic Maurice expounded the theories of Christian socialism. Whereas Owen's fault consisted in overrating the value of environment in producing the good in the individual, Kingsley overrated the influence of the individual in creating his environment and underrated the value of social legislation. "God will only reform society," said Kingsley, "on condition of our reforming every man his own self while the devil is quite ready to mend the laws and the Parliament, earth and heaven, without even starting such an impertinent and 'personal' request as that a man should mend himself." All true in a sense, but inadequately recognizing the power of bad environment to prevent a man from mending himself. Social legislation must proceed simultaneously with individual reform. In "Yeast" he shows more appreciation of this. "If a man living in civilized society has one right which he can demand, it is this, that the state which exists by his labor shall enable him to develop, or at least not to hinder his developing. . . . Property was made for man, not man for property."

Improvement of housing conditions can not be obtained without the extension of coöperation in industry, or without greater control of the development of land in the interests of production and of human life. We must simultaneously seek to promote copartnership in our industrial organization, city planning based on securing proper sanitary conditions and control of land development, and higher standards of housing accommodation under good architectural leadership if we are to make progress in improving living conditions. If the war has taught us nothing else, it has taught us that the discredited philosophers of the type of Carlyle, Ruskin, and Kingsley were nearer the truth than the "practical" man who has been running the world on the same false ethical and economic standards that have just brought several European nations to ruin.

Where Goes the City-Planning Movement?

By FREDERICK L. ACKERMAN

"Fundamental Principles"

The literature of the city-planning movement and the conferences devoted to a discussion of its aims and purposes are replete with allusions to what are called, by those who write and talk, the "fundamental principles" which are supposed to animate city planning as an activity and to justify that activity in the light of reason. While it is not difficult to arrive in a general way at a fairly clear understanding of what is meant by the term, and also what it is hoped will be accomplished through an application of the so-called "fundamental principles" set forth, it is difficult to arrive at anything like a clear understanding of what these "fundamental principles" mean in terms of action, or specifically, what it is hoped will result from their application.

To engage in the operation of giving conscious direction to the development of our material environment so that it will better serve the common good is a suggestion in the nature of a "fundamental principle," one which appeals without further description as of sufficient merit to justify approval. But, like all so-called "fundamental principles," it conveys little meaning as to how this is to be accomplished unless broken up and applied to concrete situations, which involves consideration of what sort of action should be taken, for action obviously must be conceived in terms of existing conditions.

Shall We Study Symptoms or Causes?

It would appear that any attempt to translate the so-called "fundamental principles" of city planning into such terms as would constitute a program of action which might serve to give direction to the growth and expansion of our material environment along rational lines should be largely, if not entirely, confined to the realm of scientific investigation and not that of mere speculation, for, as suggested, results are obtained through definite action applied to real situations. Scientific investigation should, therefore, address itself first to an inquiry into the causes which have brought about the conditions which, in turn, give rise to that activity which finds its justification on the ground that by action along certain lines changes in our ill-arranged material environment may be affected which will make for the common good. For it should be obvious to anyone that any attempt to modify existing conditions in our material environment will not become effective unless the causes which gave rise to existing mal-adjustments are eliminated. Hence it would appear that we have a point of departure which may serve as a basis of an inquiry into the present status of the city-planning movement and an evaluation of the work of those engaged in it. This same inquiry may well be used as the basis for a program of action to be applied to real situations.

Any brief statement, of course, which attempts to set forth what might be characterized as the "fundamental principles" which are to be observed by those engaged professionally or otherwise in the complex activities of working out these changes must be in the nature of broad generalizations qualified by numerous exceptions. For in the volume of literature spoken of in the first line of this article, there is to be observed a considerable range of opinion as to what city planning is, particularly with respect to the professional qualifications of those who engage in it. At best, little more than a rather loose and inaccurate description must be used. But for the purpose in hand this loose description will be sufficiently accurate since it is not at all difficult to discover, in so far as definite action is proposed, that the consensus of opinion is in favor of confining action to a certain fairly well-defined attitude as regards matters with which it is deemed pertinent for those engaged in city-planning work to deal.

"Normal Tendencies"

Without attempting to state in precise terms what may be said to express the underlying purposes of city planning as conceived by its spokesmen; without attempting to set forth the activities which its professional advocates assume should fall within the field of their own special concern; without venturing an opinion as to what constitutes the relative importance of the various professional or lay points of view which must be recognized, given a hearing, and made use of, it is clear beyond any question that the opinion which most readily passes current among the spokesmen of the movement is that city planning is an activity which takes its point of departure in the conditions of the present, and which proposes to accomplish its purpose largely through restrictive legislative action by following a course strictly limited to considerations of "expediency." This regard for "expediency" which is clearly to be observed in every phase of the activity, is set up by the spokesmen of the city-planning movement as constituting a meritorious attribute which should appeal to the conservative and to those who are inclined to the perpetuation of the *status quo ante*.

For in the past it has been the conservatives and those particularly interested in holding the ground already secured who have largely controlled the affairs of government and the economic situation in general and, naturally, any program of action which fails to be accorded a high rating among such as hold to the conservative point of view would not stand any very good chance of immediately becoming effective, and hence the advocacy of what is rated as "expedient" is set up as a "fundamental principle." To be more specific one of the "fundamental principles" set forth for guidance in connection with the preparation of zoning ordinances, and the like, is that any scheme which is to be advocated should give due regard—in fact, it should above all recognize those "normal tendencies" of city growth.

This, perhaps, is as good an illustration as need be given in support of the contention that the entire movement, as now staged, is so based upon considerations of "expediency" as to amount to inhibition or stultification.

Political Expediency vs. Real Progress

Zoning, like all other measures of a restricted character, is supposed to be directed toward the curbing of definite, well-established or "normal tendencies" which have resulted from the freedom of action that is guaranteed in certain fundamental political documents and supported by judicial decisions. By restrictive action, such as is exercised in the zoning of cities, for example, an exterior authority, so far as the individual is concerned, is created to step in and limit action. Since that group of problems with which we are confronted in our maladjusted urban centers arises out of the so-called freedom of action of individuals, it would appear reasonable to assume that what we need to check is no less than those "normal tendencies" which arise out of the comparative freedom of action of individuals. But this does not appear to be the conclusion of the spokesmen of the movement, for while it is generally stated that the problem is to be solved by restrictive legislative action, it is at the same time stated as a "fundamental principle" that by restrictive action we should not thwart "normal tendencies." Of course, this may be using an illustration in which other considerations may very properly be taken into account by way of qualifications; but for the question at hand, it should be sufficiently accurate.

It is this attitude of projecting a future upon the basis of the *status quo ante* which effectively thwarts progress and prevents the acquisition of any accurate knowledge concerning what are the causes which work for present maladjusted conditions. It is a pure assumption that out of present tendencies better conditions in the future may be created; what evidence there is at hand points clearly in the opposite direction.

The inclusion of considerations of "expediency" among the "fundamental principles" which should direct the work of those professionally engaged in the work of city planning, or which are to be used in the work of stimulating public opinion, lifts the entire activity right out of the field of scientific research and investigation, and lodges it in the field of politics. This statement is not made with a view of depreciating the value of considering a program of action in terms of practical politics; it is rather presented with a view of pointing out that any scientific study of causes cannot properly be rated as such so long as it takes possible political consequences into account in the formulation of its conclusions. This is precisely the error into which the spokesmen of the movement have fallen in their attempt to organize the so-called "fundamental principles" of city planning. The so-called "fundamental principles" are merely suggestions of what is deemed to be politically expedient at the present juncture. At the present juncture what is deemed politically expedient is action, which coincides with "normal tendencies;" and "normal tendencies" are obviously the cause of our trouble. Translated into workaday English, "normal tendencies" represent the right of the individual to use the community as a machine for procuring individual profits and benefits, without regard to what happens to the community. That is why we have maladjusted communities. That is why we shall continue to have them, so long as the spokesmen of city planning continue to proclaim that adjustment can be had without touching the sacred causes of the maladjustment.

Unwarranted Assumptions

"Normal tendencies" is merely descriptive of developing situations which now prevail and are clearly evident upon superficial examination. Action in any field takes a direction determined always by the resultant of the forces acting upon that field. That the more powerful of the forces which gives rise to a situation are beneficent does not follow; and hence any assumption that "normal tendencies" or tendencies which may be said to be characteristic of a developing community will result, if followed, in a better condition is not warranted.

Hence it is that a study of the forces out of which the present maladjustments have arisen, should be the focus toward which inquiry should be directed, and an inquiry of this nature would concern itself with causes and not with prospective political situations. An inquiry of this nature would reveal the prospect, likewise, of what would likely be the outcome of any attempt to deal with these causes by other methods than that of allowing them to operate in comparative freedom—which is what is meant by saying that in our schemes of restrictive legislation we should above all recognize and allow "normal tendencies."

The Competition for the Federal Buildings, 1792-1793*

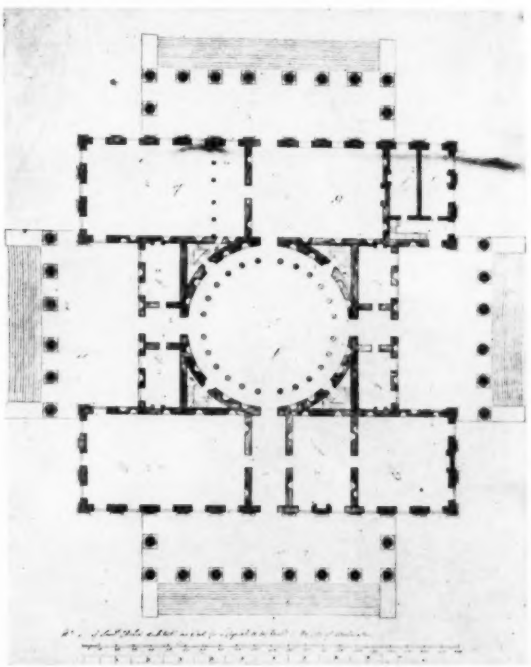
V. THE COMPETITORS AND THEIR DESIGNS

By FISKE KIMBALL and WELLS BENNETT

The Virginia Builders

The builders on the Virginia side of the Potomac were not less eager to secure the Federal work than those on the Maryland side, but they were fewer in number. Jefferson, in his "Notes on Virginia" (1784), had bewailed the fact that a workman could scarcely be found capable of drawing an order, and as late as 1819 he brought artisans from Philadelphia to work on the University. It must not be forgotten that the great tidewater mansions had almost ceased to multiply even before the Revolution, and that few fine houses were built in the up-country before 1800. In the intervening period of pioneering, of war, and recovery, however, had fallen the building of the capitol at Richmond, and this had brought forward one or two men of greater skill, to rival the builders from farther north and farther south.

*Continued from the August issue.



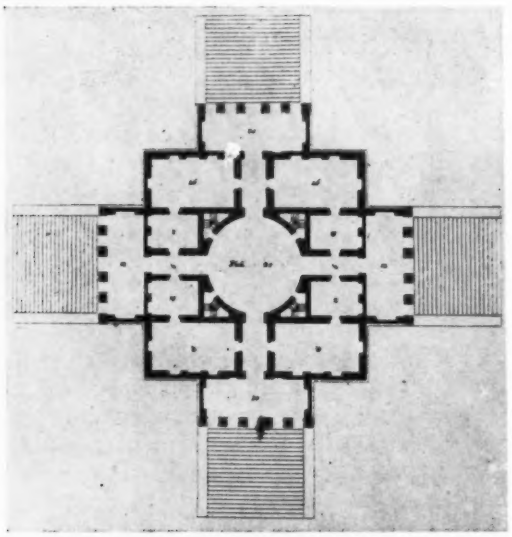
PLAN FOR THE CAPITOL—SAMUEL DOBIE
(From the original drawing in the possession of the Maryland Historical Society)

SAMUEL DOBIE

The work of Samuel Dobie, in connection with the Virginia capitol, has already been discussed in the Journal[1] and need only be summarized here, with the addition of a few new facts and a fuller interpretation. Of a name long honorable in the colony, he first appears in Virginia records in the "List of the inhabitants . . . in the city of Richmond: 1782,"[2] where there is the entry: "Samuel Dobie; age: 52; occupation: Chymist; lots improved and their numbers: 1, 530; slaves titheable: 1; slaves not titheable: 2; cattle, horses, mules, etc.: none." The improved lot, number 530, at the northeast corner of what are now Sixth and Grace Streets, is the same mentioned by the Richmond antiquary Mordecai as the one occupied by Dobie.[3]

In 1786 Dobie is spoken of by Edmund Randolph, then one of the Directors of the Public Buildings engaged in erecting the state capitol on the plans sent from Paris by Jefferson, as "our superintendent, and an adept in draughtsmanship." William Hay, another of the Directors, speaks of him in 1790 as "Surveyor of Public Buildings," a title afterwards given by Jefferson to Latrobe when supervising the Federal Capitol. For his services as superintendent or surveyor, examining the work and certifying the accounts of individual contractors, Dobie seems to have received three per cent on the cost.[4] He occasionally made structural drawings, as in 1790, "A plan of the Pediment Roof of the Capitol" and in 1793 "plans to do the work by. . . . in building the stone steps and stairs,"[5] and in the absence of any sections

[1] Vol. III (1915), pp. 477–478, 481–484.
[2] "Heads of Families, First Census of the United States: 1790" (1908), p. 111.
[3] "Richmond in Bygone Days," p. 87.
[4] "Calendar of Virginia State Papers," vol. 8 (1890), p. 317.
[5] *Ib.*, pp. 318, 319.



PLAN OF PALLADIO'S VILLA FOR ALMERICO
(From Leoni's "Palladio," Book II, Plate XIV

of the building among the original designs, must have made all the interior details. In one instance, at least, he himself acted as contractor, since it appears that he "contracted with the Directors in February, 1787, to put a flat roof on the Capitol which should be durable and tight for £170," but, "after much labor in honestly endeavoring to fulfil his contract," it proved impossible to make the roof tight, and the original design, which showed a pediment, was followed. Dobie's connection with the Capitol came to an end in 1794, when the work ceased for the time.

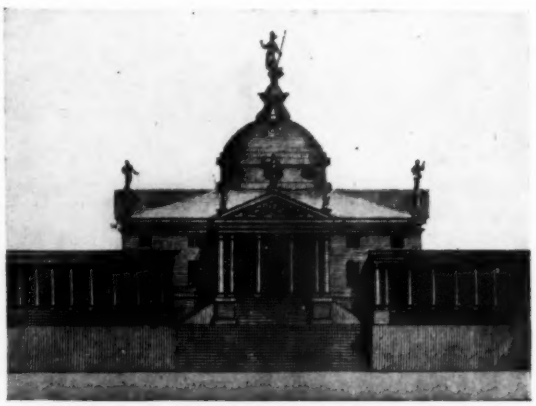
In 1796 he applied for appointment as architect of the Penitentiary,[1] for which plans had also been sent from Paris, but the post was given to Latrobe, who had just arrived in this country. None the less, Dobie asked compensation the next year for an unused plan of the building furnished by him to the board.[2] Henceforth we hear no more of him, except in 1798 when, now a man of sixty-six, he was recommended by Hay to pass on the execution of the Penitentiary, "as the best judge I know of work of this kind."[3]

Besides these evidences of his practical experience, we find at the Virginia Capitol some examples of his taste in design, in the interiors and in departures from the original drawings. The rooms for the Senate and House are lined with pilasters above a pedestal dado: in one case Ionic with modillions, in the other Doric, coupled. The details and proportions are of an academic correctness of design which had been very rare in Virginia before the Revolution. They testify to the use of some architectural handbook, which the formulæ show in this case to have been not Palladio or Vignola, but Scamozzi or some derivative. Over the square central hall is a hemispherical dome. True, it is only of plaster, and rises not from pendentives but from a flat soffit, yet, though unstructural, it is one of the first domes of any sort executed in North America.[1]

On the exterior of the building there is a similar instance of Dobie's classical tendencies, in the addition to the original design of pilasters at every bay along the sides and rear of the building. Jefferson, partly under the influence of Clérisseau, partly no doubt to save expense, had omitted the engaged order of the cella walls of his prototype. Dobie in restoring them gave the first instance, in an American public building, of such a regular wall treatment with the full colossal order. There had, indeed, been few examples in Colonial buildings of any type: St. Michael's Church in Charleston and the end walls of the Apthorpe house in New York were almost alone; and the nearest approach in civic work was Harrison's Brick Market at Newport, with its two-story order above a high

[1]Calendar of Virginia State Papers, vol. 8 (1890), p. 406.
[2]*Ib.*, p. 445
[3]*Ib.*, p. 507.

[1]The interior dome of the State House at Annapolis was completed at much the same time, in 1793. See D. Ridgeley: "Annals of Annapolis" (1841), p. 147.

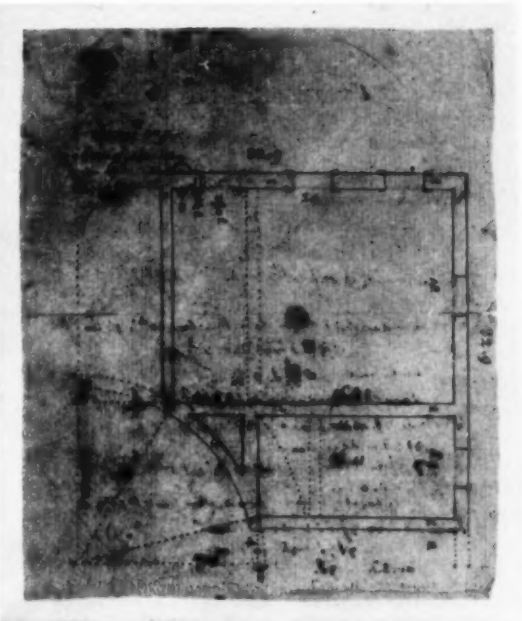


PALLADIO'S ELEVATION FOR THE VILLA TRISSINO AT MELODO
(From Leoni's "Palladio," Book II, Plate XLV)

arched basement. The scheme was an academic one, exemplified in some of Palladio's palaces at Vicenza, and, in view of Dobie's use of Palladio's volumes in his design for the national Capitol, there can be little doubt that he derived his inspiration for the pilasters also from the engravings of the work.[1]

It may well also have been Dobie, as an advocate of academic treatment generally, who was responsible for the idea, as well as the attempted execution, of a balustraded terrace roof for the building. An aversion to visible roofs was among the strongest feelings of one group of architects and laymen of the early Republic. This was in striking contrast to the practice of Colonial days, in which not a single building without a visible roof can be found, and eaves balustrades are exceedingly rare. That of St. Paul's Chapel, New York City, can scarcely have been intended to conceal the vast roof, and itself may date, like the spire, from Republican days. So that the sole notable example of concealed roofs is that of the aisles of Christ Church in Philadelphia, with their high, attic-like parapets. In contemporary Europe, however, visible roofs had long been taboo in buildings of academic pretensions. Although Palladio's published designs for villas and palaces all show pitch roofs without eaves balustrades, his Basilica, like the Library of St. Mark and the palaces of Michelangelo on the Capitol, had only a balustrade visible above the cornice; and this scheme of roof *à l'italienne* had been an index of the spread of academic influence. It marked the first designs of Inigo Jones for Whitehall and the Queen's House, Greenwich; it appeared in France for the first time in the garden front of Versailles and the colonnade of the Louvre. For the academic style indeed "no roof but a spherical one" was thought sufficiently dignified to show.

The appearance of this feeling in America after the Revolution was broadly contemporary with the contrary tendency to imitate the form of the temple with its broad expanse of roof, and for a time the two struggled for mastery. Washington's portico at Mount Vernon, built during the Revolution or shortly after, may have been the very first domestic structure to have a balustraded cornice, which appeared almost simultaneously in the North in the Peirce-Nichols house at Salem. When Washington wrote of Hallet's first competitive design, a peristylar temple, "the roof. . . . I must confess does not hit my taste,"[1] it was not any eccentric form of roof, but visible roofs as such which he was condemning. Many of the competitors themselves already shared his feeling, for eaves balustrades appear in a clear majority of the schemes submitted, and, at least in Hart's design for the President's House and Lanphier's for the Capitol, the roof is a flat one. That Dobie also did not employ, in this case, a flat roof behind his balustrade was due, no doubt, to the practical difficulties he had experienced with the one at Richmond, which seems to have been the pioneer attempt in America.

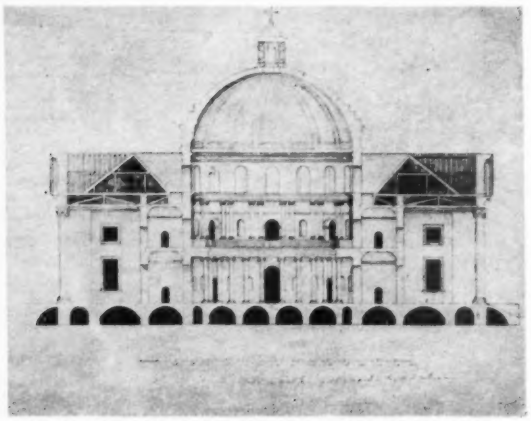


Quarter Plan of a Villa Rotonda Study for the Governor's House at Richmond, by Thomas Jefferson
(From the original drawing in the Coolidge Collection, Boston)

In his design for the national Capitol, Dobie used much the same vocabulary of forms as at Richmond, in the development of a scheme which was itself consecrated by academic sanction—that of a *villa rotonda*. It has, in other words, a square mass with four porticoes, about a circular domical hall lighted from above. It is a scheme less practical than purely ideal, with monumental porticoes and vestibules actually exceeding in area the rooms for use—the extreme

[1]Book 2, pls. 13 and 17.

[1]Letter to the Commissioners, July 23, 1792; L. C., Letter Book 11, p. 228.



SECTION FOR THE CAPITOL—SAMUEL DOBIE
(From the original drawing in the possession of the Maryland Historical Society)

expression of abstract enthusiasm for classical form.

Suggested in the designs of Giuliano da San Gallo and Serlio, the type was first completely developed and executed by Palladio[1] in his famous villa erected near Vicenza for Paolo Almerico, with four hexastyle porticoes. Drawings of this, according to Palladio's second project, differing from the existing work by Scamozzi in having a full hemispherical dome on the exterior, are given in Palladio's "Architecture," Book II, plates xiv and xv. It is less known that Palladio restudied the scheme once more in his project for the Villa Trissino at Melodo, executed ultimately on a different plan. It appears among his published designs, Book II, plate xlv. Here, above a low, pedestal-like drum, there is a Roman saucer dome with steps at the base, though still with a lantern-like crowning mass.

From Palladio's plates the scheme was copied in northern Europe, with a literalness or a freedom of modification dependent on the degree of academic fervor. In the royal pavilion at Marly (1680–1686), the most purely ideal of the buildings of Louis XIV, the absolute identity of the four sides was retained, but the exterior dome and the projecting porticoes were alike omitted, while pilasters of the full height of the walls were carried entirely around. In England at least four houses of the type were projected in the decade from 1720–1730, generally with some or even all the porticoes omitted and with other concessions to economy or use. Two, however, retained an exterior dome: Mereworth Castle, by Colin Campbell, following Palladio's plate of the villa for Almerico with the utmost literalness throughout; Lord Burlington's villa at Chiswick, otherwise less complete, having an octagonal saucer dome with steps.

In America, where Palladian ideals were so little followed before the Revolution, there was no executed building of the sort, but one had already been projected by the great exponent of Palladianism, Jefferson. Among his studies at the time of the founding of Richmond, when chairman of the Directors of the Public Buildings (1780–1783), closely related with earlier studies of his for a Governor's House for Virginia, is the quarter-plan of a *villa rotonda*.[1] Although somewhat reduced in scale and showing but a single frontispiece of four columns, this follows exactly the interior arrangement of Palladio's design.

For the needs of a great legislative building, Dobie was forced to increase the scale beyond that of any other example of the type, making the main block 220 feet square, the columns 53 feet high. With uncompromising ardor he retained all four porticoes, even adding two columns to the Palladian width of six in front and rear. They thus surpassed even the great hexastyle portico of the Virginia Capitol itself, the first in America. The central rotunda was 95 feet in diameter, surrounded by an interior peristyle in the main story, with a balcony giving

[1]The best discussion of the *villa rotonda* type in the sixteenth century is by Fritz Burger: "Die Villen des Andrea Palladio" (1909), pp. 53–66, 112–118.

[1]Kimball: "Thomas Jefferson, Architect" (1916), fig. 105, pp. 33 and 140.

ELEVATION FOR THE CAPITOL—SAMUEL DOBIE

access to the rooms above. With its circle of pilasters in the second story and its arched clerestory below the spring of the dome, this would have been a noble room. On the exterior, the dome follows not the hemispherical form of Palladio's plate of the villa for Almerico, but the Roman saucer type he showed for the Villa Trissino. Indeed, it even surpasses that of the Villa Trissino in classical accuracy. The materials for such revision of the design, however, themselves exist in Palladio's book, in the plates of the Pantheon (Book IV, plates lvii, lviii), the Galluce (xxvi), and especially the temple of Vesta (xxxix). Even the sculptured figures which Dobie shows on his elevation seem to be clumsily copied, with little modification, from those in these same plates (Leoni edition). We can thus scarcely doubt that it was directly from Palladio, rather than from any of his imitators, that Dobie derived the forms of his design for the Capitol.

The coincidences that Dobie was in Richmond at the time when Jefferson had proposed a *villa rotonda* for the Governor's House, that he had shortly afterwards, as superintendent, come into charge of the drawings and projects of the Directors, seem, however, scarcely accidental. Whether the fragmentary sketch which Jefferson retained was but a study for a more elaborate drawing which remained in Richmond, or whether (as is more probable) his idea had merely been advanced orally to the Directors, it may not be too hazardous to surmise that the first suggestion for the employment of the *rotonda* came to Dobie through the example of Jefferson.

In any case, his own contribution and his own distinction as one of the minor pioneers in the introduction of academic forms into America, are sufficient to rank him well among the abler of the competitors.

JOHN COLLINS

The second prize for a design for the President's House was awarded, as we have seen, to John Collins. His address is not given and his name does not appear elsewhere in the Commissioners' records. As it is one so common (appearing four times in the census of 1790 for Maryland, five times for New York, seven times for Pennsylvania, and so on) it might at first seem impossible to identify him. But the presence at just this time of a John Collins among the contractors for the Capitol at Richmond, in collaboration with Dobie, is too significant to be accidental, and we may confidently assume that the men were one and the same.

Collins' name does not occur in the list of the inhabitants of Richmond in 1782, or on the map by Jefferson giving the property owners at that time. Among the heads of families in the Virginia state census of that year there was a John Collins in Halifax County and one in Orange County, while in 1783 one appears also in Shenandoah County, and in 1785 another in Norfolk County. Very possibly one of these was our man.

His first appearance in the vouchers for the Virginia capitol (now at the state Library) is as one of three referees to decide on the fulfilment of a bond of Edward Voss, obliging himself to repair certain defects in the columns of the portico. Collins was thus already known and respected in Richmond as a judge of such matters. During 1793 he was himself doing much work for the Directors of the Public Buildings, having a contract (not itself preserved among the Capitol vouchers) on which he was paid £371 at various times from April 25, 1793, to January 18, 1794. He also certified to the receipt of scantling, nails, and putty. One part of his work was the glazing of the building, according to his bill of December 9, 1793.[1]

These scanty notices are all we can recover of a builder, who, to judge by the award for his designs, must have shown merit, yet who, like them, soon dropped completely from view.

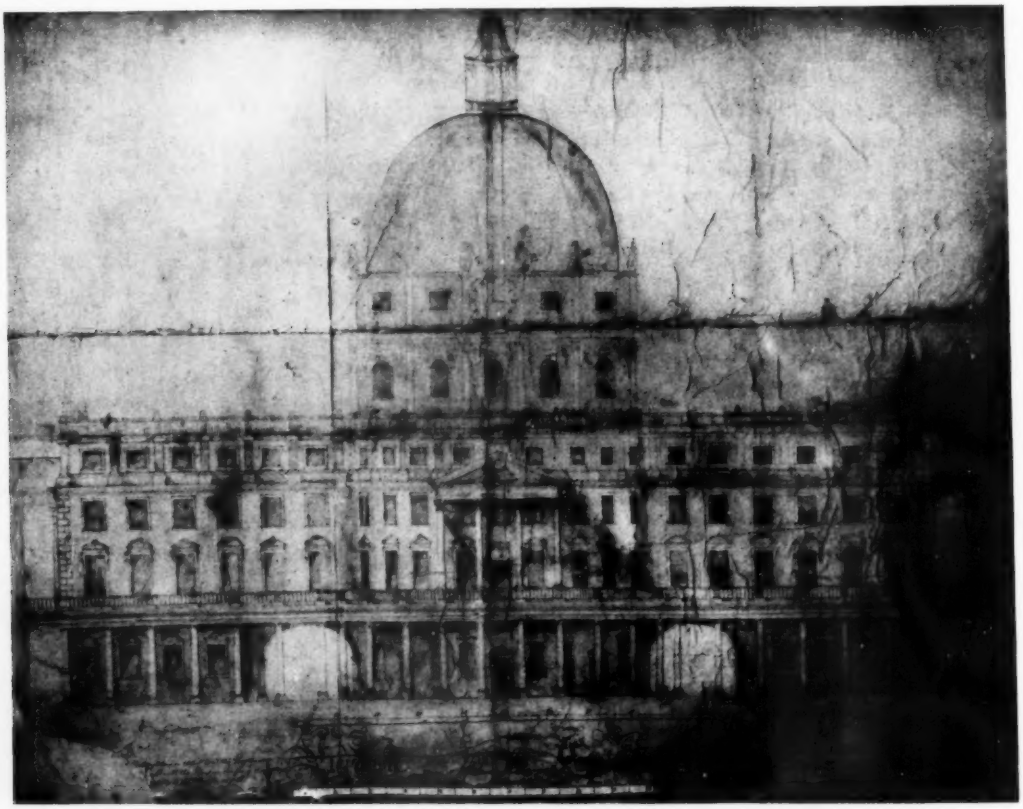
ROBERT G. LANPHIER

The Commissioners did not directly acknowledge Robert G. Lanphier's design for the Capitol, and the single allusion to it[2] furnishes no clue to his residence or reputation. It seems not improbable, however, that he was a near relative, perhaps the son, of Going Lanphier, the joiner and builder employed by Washington in altering and enlarging Mount Vernon in 1773–1778.[3] This would have been in accordance with the then usual custom of handing on the father's business or occupation to the son. As

[1] "Calendar of Virginia State Papers," vol. 6 (1886), p. 676; also vol. 8 (1890), p. 317.

[2] Commissioners to Washington, July 19, 1792, "Letters of the Commissioners," vol. 1, p. 102.

[3] P. Wilstach: "Mount Vernon" (1916), pp. 126, 127, 140, 141.



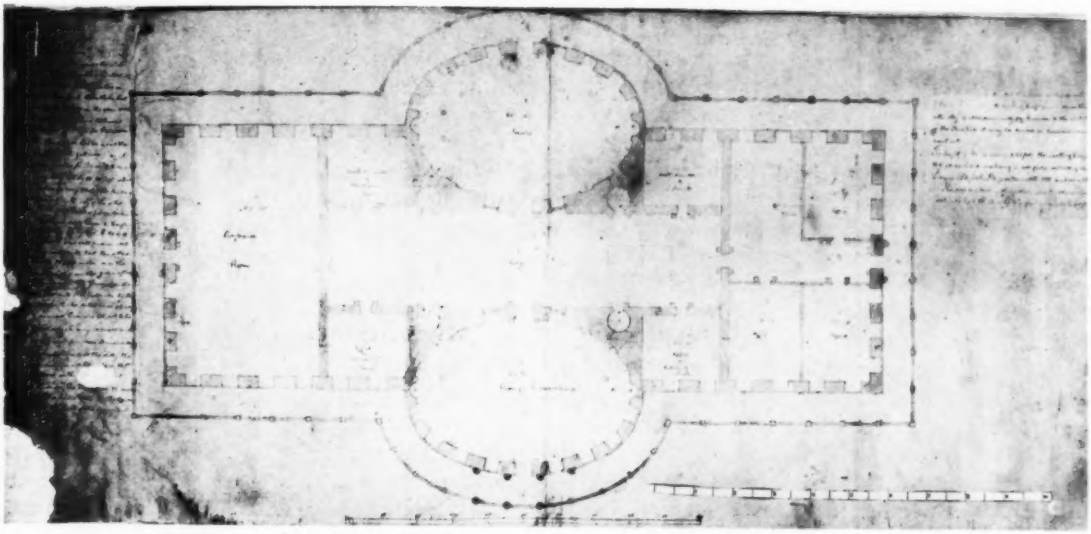
ELEVATION FOR THE CAPITOL—ROBERT G. LANPHIER
(From the original drawing in the possession of the Maryland Historical Society)

the elder Lanphier was a resident of Fairfax County,[1] it is reasonable to assume that Robert G. Lanphier was also a Virginian. The scanty records of his locality give no clue to any other architectural work he may have done.

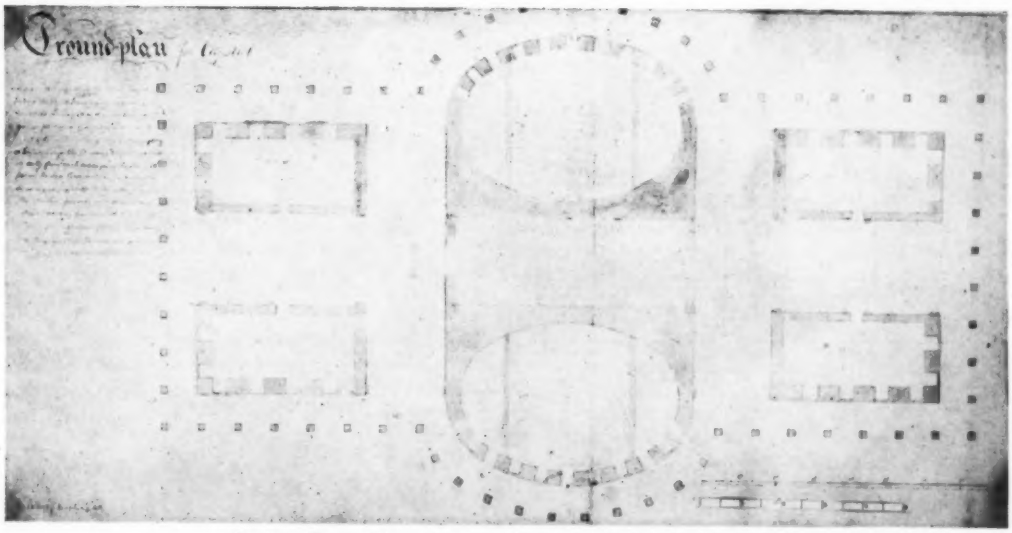
That Lanphier's design, with Hallet's, was one of those most seriously considered at the original judgment of the competition, is indicated by the Commissioners' letter of three days later, cited above, when after further consideration, they wrote, "Lamphier's plan is given up as impracticable." What had recommended it especially is revealed by Washington's reply, in which he praises Turner's design for the possession of a central dome, and suggests that the building might be improved by being "surrounded by columns and a colonnade." Both these features, as well as a concealed roof with attic and balustrade (which he favored, as we have seen) are stressed in Lanphier's design.

The plan shows the fullest development of an element which appears in several of the competitive designs: the oval room, here employed on a large scale both for the Senate and for the House. It is a feature which, scarcely known in the Colonies before the Revolution, was common in Europe in the baroque and rococo and was being eagerly taken up in America at just the time of the competition. It was especially associated with France, where, from the time of Louis XIV and Louis XV, it occupied the place of honor in the château, projecting boldly in the middle of the garden front. From France it became the favorite device of the rococo in Germany, at Sans Souci (1745), Solitude, and Monrepos (1764). In England the strictness of Palladianism made it less common, but it occurs not infrequently as an interior feature in James Paine's "Plans of Noblemen and Gentlemen's

[1]Going Lanphier gives his address as "New Church." This was the name given to the church built by Edward Payne "on the middle ridge near the Ox Road in Fairfax County." See "Colonial Churches in the Original Colony of Virginia," pp. 40, 275, 281, 284, 296.



Main Floor Plan for the Capitol—Robert G. Lanphier
(From the original drawing in the possession of the Maryland Historical Society)



Ground Floor Plan for the Capitol—Robert G. Lanphier
(From the original drawing in the possession of the Maryland Historical Society)

Houses," 1767—a book of some currency in America—which also shows in the design for Kedleston a circular projecting salon surrounded by a peristyle. The first American building to have an oval room was the Woodlands, near Philadelphia, built about the time of the Revolution and substantially remodelled in 1788. During the very year of the competition, Charles Bulfinch, recently returned from France, was including it in his first important house, for Joseph Barrell of Boston, which was to be imitated at once in the Lyman, Derby, and other houses there. In the competition itself, Small's designs include several quasi-elliptical rooms, Faw's has its oval colonnade in the center, and Hoban's for the President's House, like Lanphier's for the Capitol, has a projecting oval room as a central feature. The idea was in the air. Lanphier himself, in his marginal notes, says merely, "Room for the Representatives, 60 x 40. I have made this room and the Senate of oval form with Galleries making, I think, the most commodious for Business that a space could be."

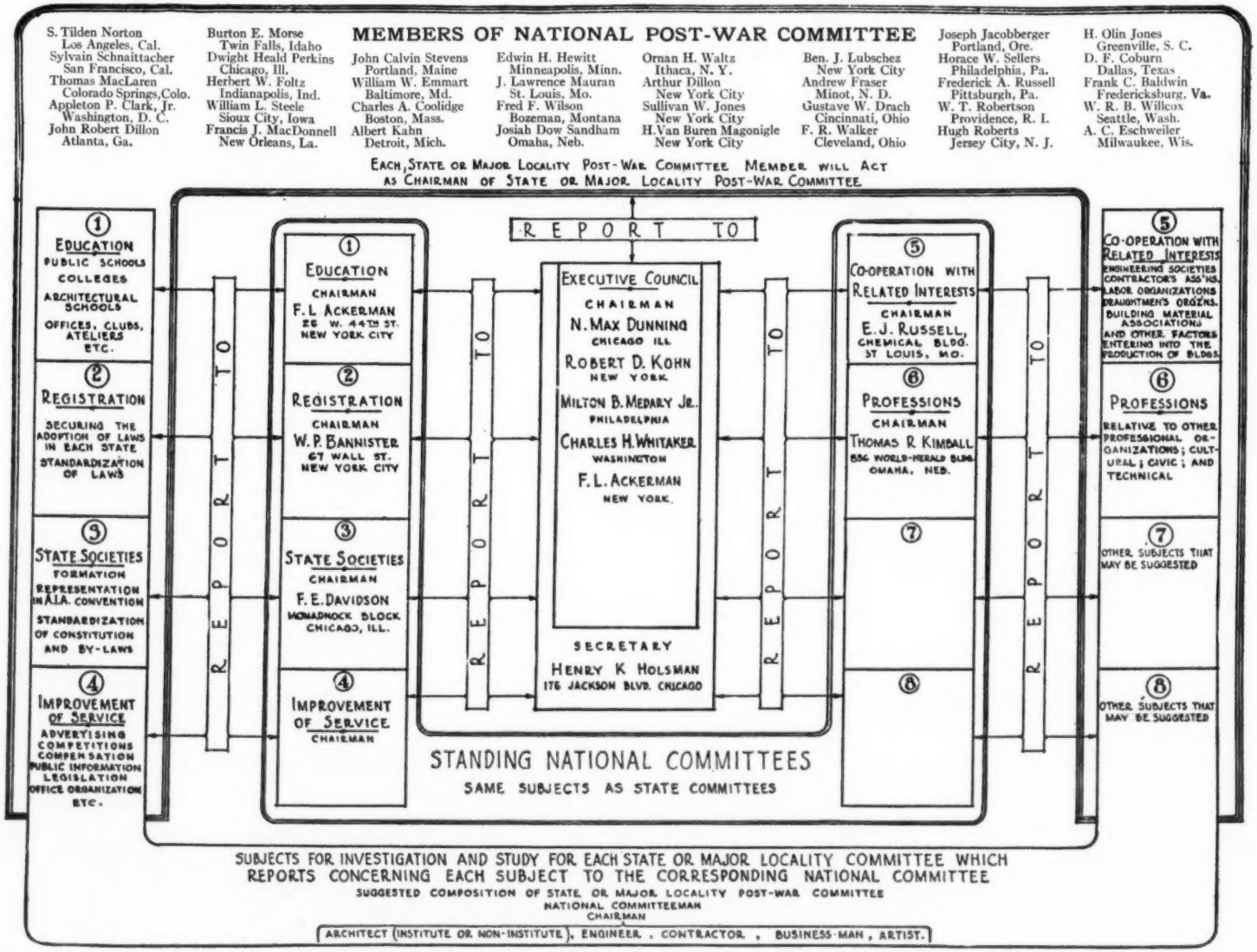
Lanphier's design, curious as it is, would seem probably to have had some precedent in books, since so many of its forms were not such as were in the traditional vocabulary of a Colonial builder. The placing and treatment of the openings follow conventional standards, and perhaps an engraving of some building in England or on the Continent may have given the inspiration—even one of those in Paine's book. Lanphier's variations as designer and draughtsman, however, completely conceal the identity of the prototype. That the relation of the plan and elevation is not well thought through shows in the spacing of the columns in front of the arched entrances. It is, moreover, not clear that the author understood the bearing of the cupola over the oval rooms below. Of the somewhat grotesque figures he writes: "The figures on the Battlements is Cornucopia offering the horn of plenty to industry: Wisdom holding forth her precepts to justice and Faim offering wreath Laurel to History." These banal allegories, too, perhaps, show a knowledge of English and Italian precedents, a knowledge too vague, however, to give the author any working mastery of design.

A New Theory of the Universe

At the joint meeting of the Royal Society and the Royal Astronomical Society held in London on November 6 last, Sir Frank Dyson, the Astronomer Royal, and Dr. Crommelin, reported upon the results of observing the total solar eclipse of May 29, 1919. Sir Joseph Thomson, the eminent scientist, in commenting upon the deductions offered by Dr. Crommelin, described them as "the greatest discovery in connection with gravitation since Newton enunciated that principle, and one of the greatest achievements in the history of human thought."

Briefly, it may be said that the observations seemed to verify the Einstein theory that the light of stars is deflected in passage past the sun "in consequence of the sun's gravitation." Dr. Crommelin affirmed that, as a result of this verification of Einstein's belief, space would no longer be looked upon as extending indefinitely in all directions. Euclidian straight lines could not exist in Einstein' space. They were all curved and, if they travelled far enough, would regain the starting point, thus putting an end to the theory of unlimited space. Computations to find the radius of space seemed to indicate it as about a billion times the distance of the sun from the earth, which was eighty times the distance assigned by Shapely to the most distant stellar cluster known.

Mathematicians interested in the dimensions of hyperspace will be intrigued by the assertion that "the fourth dimension had been the subject of vague speculation for a long time, but they now seemed at last to have been brought face to face with it." Consideration is now being given to further spectroscopic observations at the next total eclipse of the sun which occurs in September, 1922, visible in the Maldive Islands and in Australia.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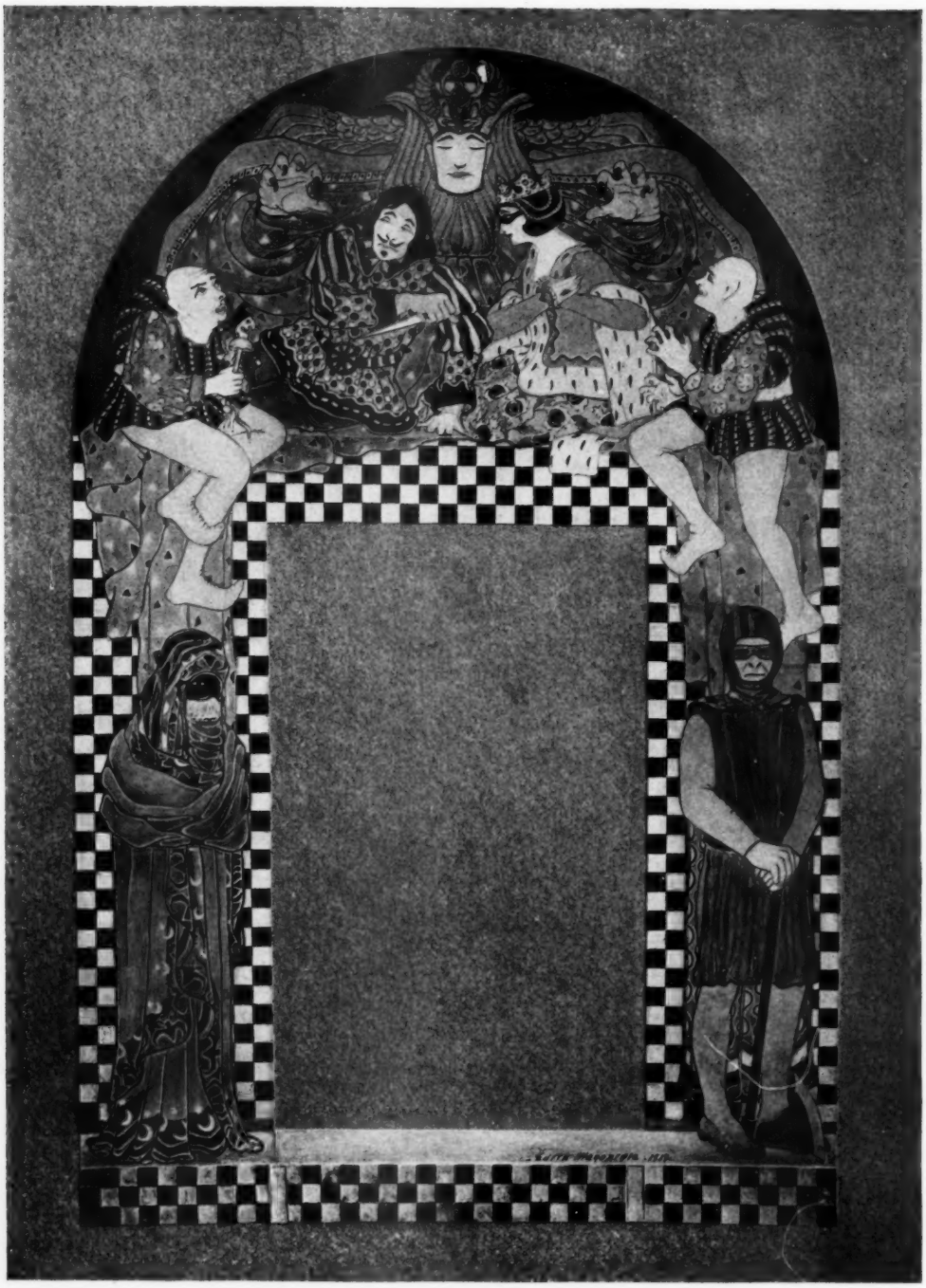
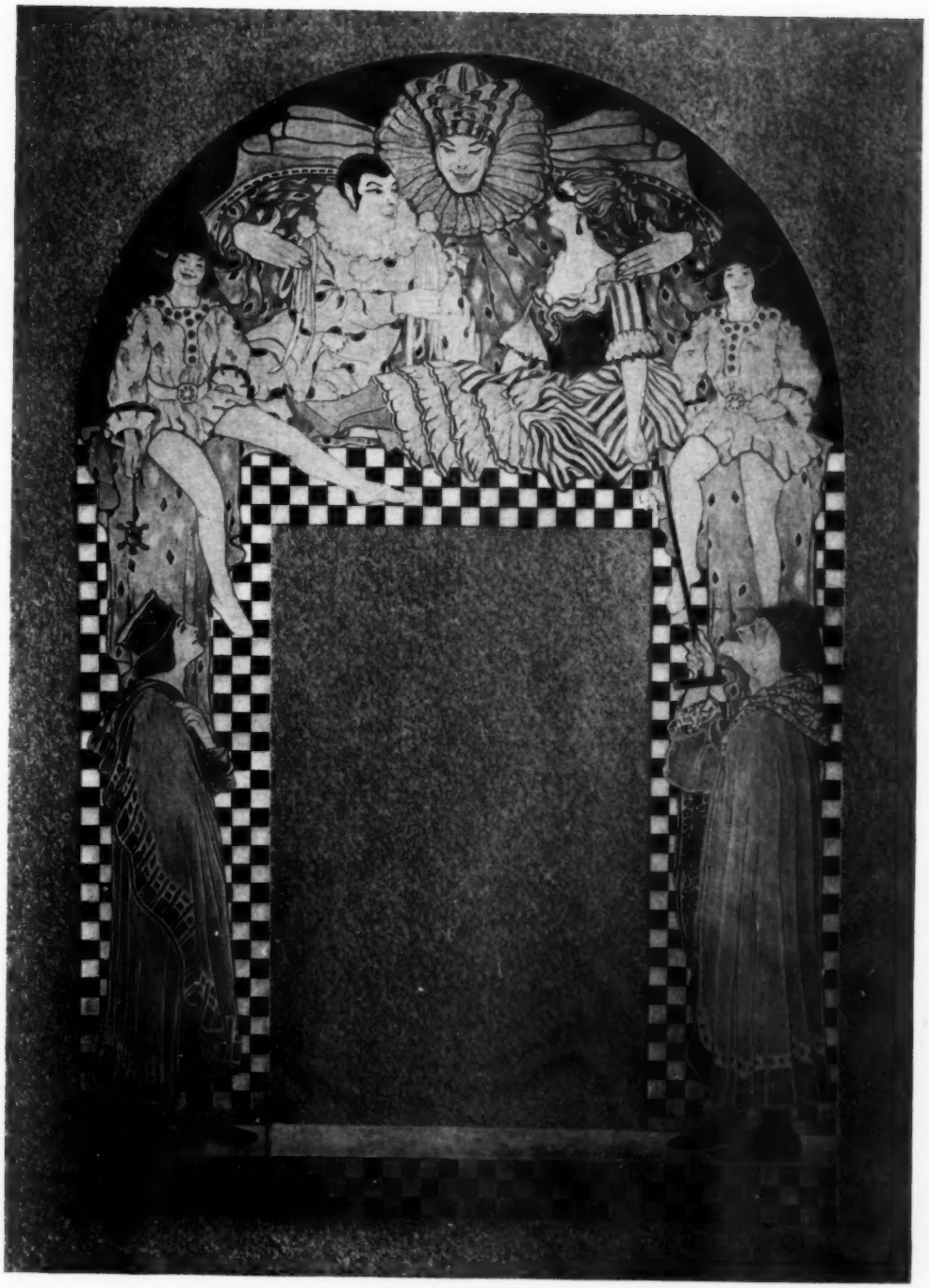


TRAGEDY
Painted by Edith Magonigle for The Playhouse, Wilmington, Del.



COMEDY
Painted by Edith Magonigle for The Playhouse, Wilmington, Del.

Correspondence

A Criticism of the Government's War Hospital Plans

To the Editor:

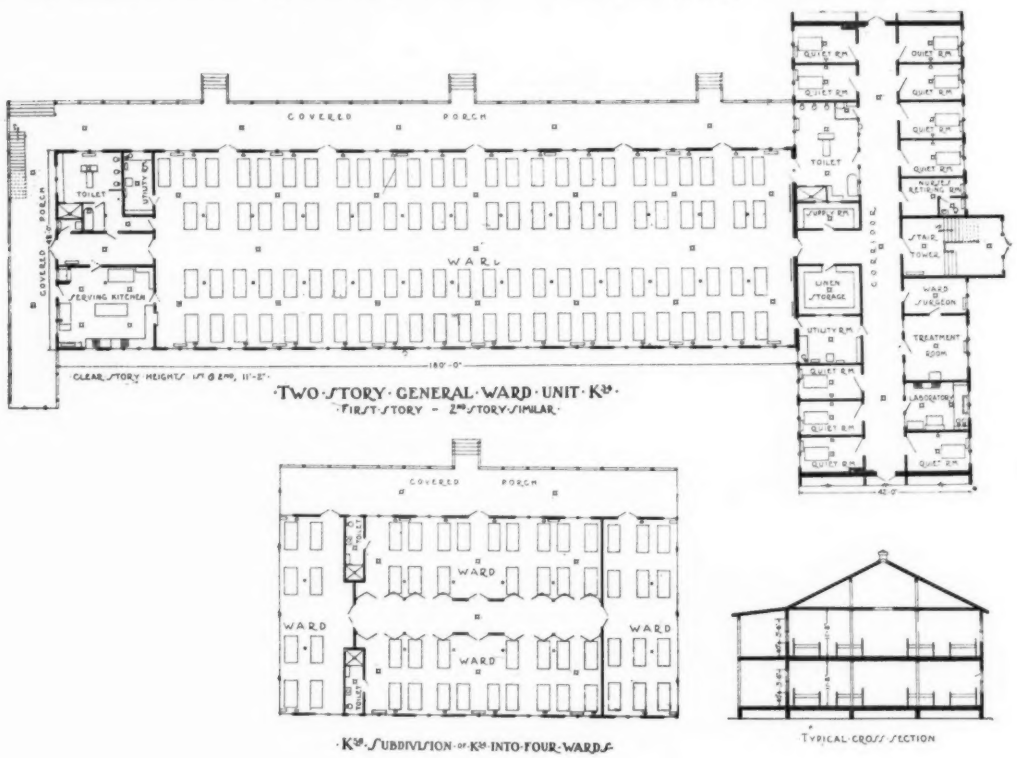
In the October number of the Journal, there appears an article signed by Captain Kettell, Sanitary Corps, U. S. A., on "Army Hospitals in the United States," which contains certain half-truths that give an impression quite at variance with the facts.

Under the head of Hospitals of New Construction, he speaks of the plan of the Letterman General Hospital in California as the precedent on which the early camp type hospital was first laid out. This plan (A) shown on page 533, is a symmetrical arrangement, with no attention paid to the customary north and south orientation of wards. The lack of consideration given to the question of orientation of individual buildings in the Surgeon General's Office in the early days of the war may be inferred from the answer of the head of the hospital planning division to a request by the writers for his opinion as to orientation of wards. He said, "The hospital as a whole *must* face the cantonment." Captain Kettell states that thirty-two Camp and Cantonment Base Hospitals (B) were built on the lines of this plan, but that in the winter of 1917 a new plan was produced, that of the Hospital at Camp Abraham Eustis, in Virginia, illustrated in (C) on the same page, in which the ward buildings are oriented, but he fails to explain why the earlier plan, with its neglect of orientation, was carried out in the case of these thirty-two Base Hospitals; against the protest of experts called in by the Surgeon General's Office; a protest made before a contract had been let or a shovelful of earth turned. The Knox type of general plan used for the Camp Mills Hospital (D) also takes ward orientation into account and is in many ways well arranged, while the later Bragg type (E) again neglects this prime requirement, and with its covered porches on both sides of the wards, as shown in detail K-58,* is only suitable for far southern climates.

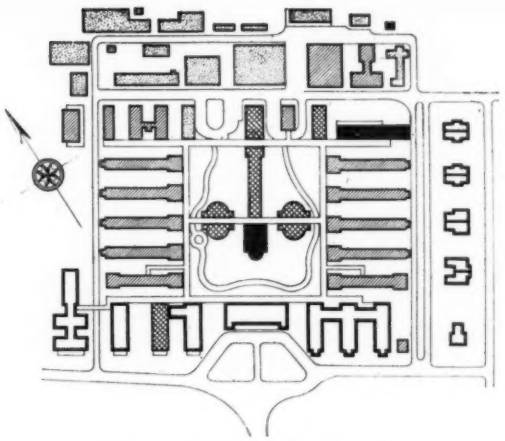
In a word, no consistent progress is apparent in the matter of general arrangement of plan.

In the matter of the detail of the Ward plans, the most important element in a hospital, Captain Kettell states that 41,000 beds were built of the K-1 and L-1† types, in which each building houses 34 beds, and in which the ratio of window area to floor area is 1 to 12. Captain Kettell failed to add that in good hospital planning the customary ratio is 1 to 5. This cardinal defect in the plans was also called to the attention of the army medical authorities, as were other defects in

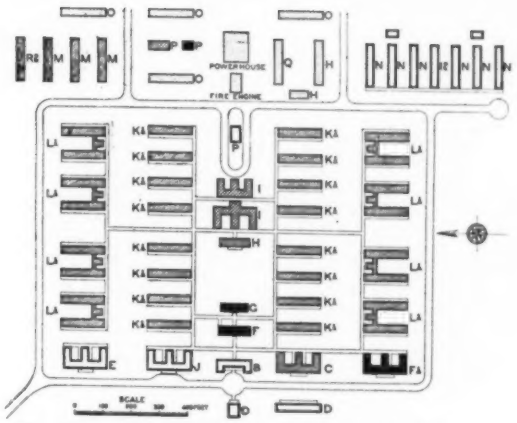
*October Journal, page 441. †See next page.



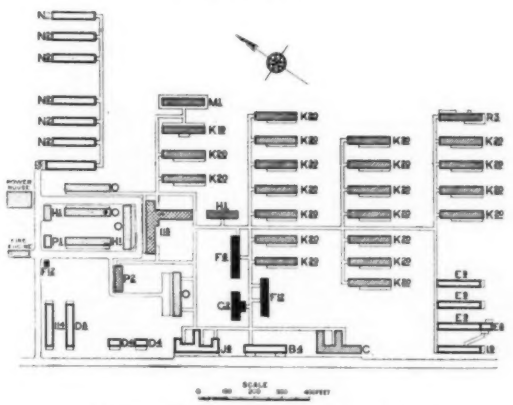
K 34 AND K-56



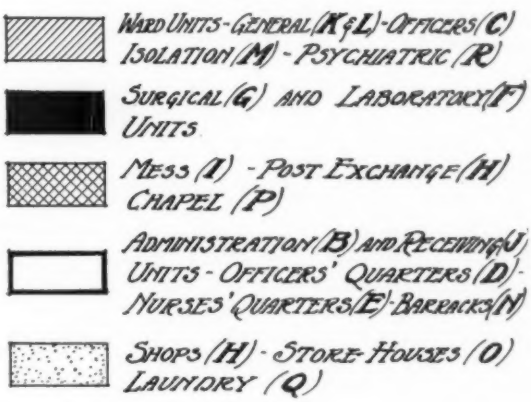
Letterman General Hospital (A)
Capacity 450 beds

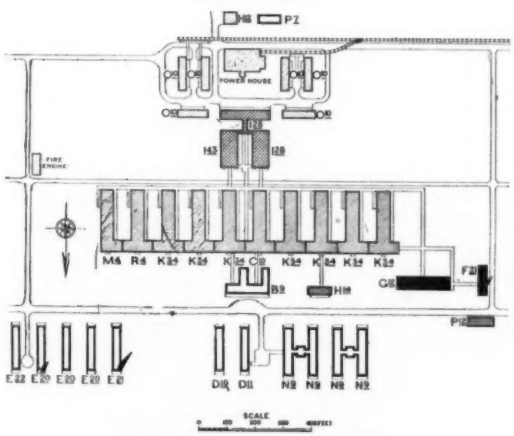


Early Camp Hospitals (B) (schematic plan)
Capacity 1,000 beds

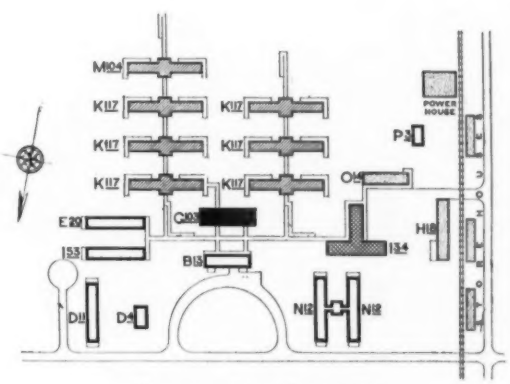


Hospital, Camp Abraham Eustis (C)
Capacity 750 beds


KEY
Ward Units - General (K & L) - Officers (C)
Isolation (M) - Psychiatric (R)
Surgical (G) and Laboratory (F)
Units
Mess (I) - Post Exchange (H)
Chapel (P)
Administration (B) and Receiving (J)
Units - Officers' Quarters (D) -
Nurses' Quarters (E) - Barracks (N)
Shops (H) - Store-Houses (O)
Laundry (Q)

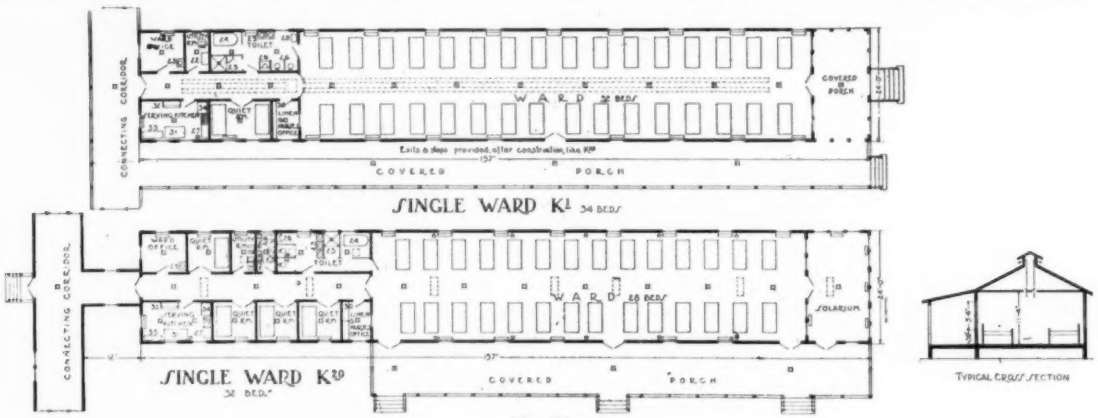


Hospital, Camp Mills (D)
Capacity 2,000 beds



Hospital, Camp Bragg (E)
Capacity 450 beds

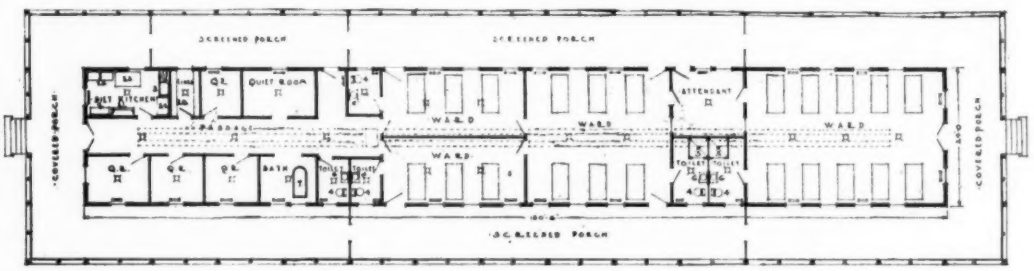
Block Plans Showing Progressive Development in the Grouping of Hospital Buildings. The Stages of Transition Are Indicated by the Letters A, B, C, D, E



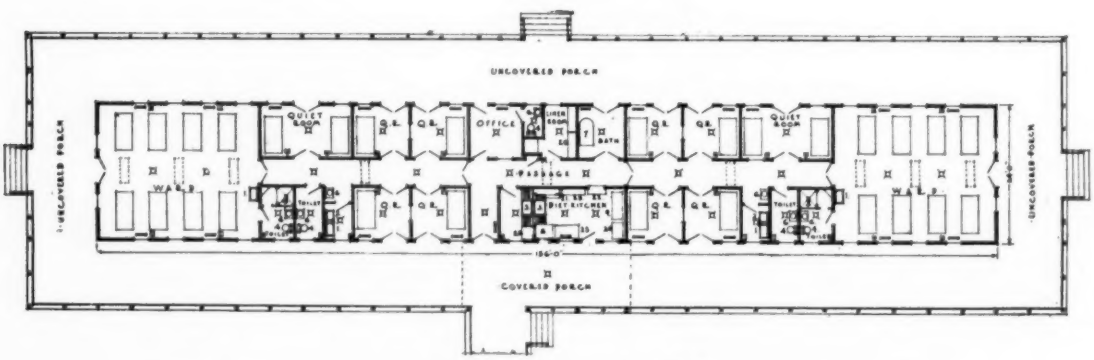
K-1 Type

detail, but the protests were ignored and "41,000 beds were built of the K-1 type." Captain Kettell also should have explained that when the National Guard Camp Hospitals were built, the ward buildings were not sheathed on the inside, and the plumbing fixtures shown on the plans were omitted.

In the summer of 1918, as explained by Captain Kettell, it was determined to erect larger hospitals containing 2,500 to 4,000 beds, and the so-called Knox type of hospital, in two-story buildings, with wards containing 100 beds each, illustrated in the plan of Camp Mills (see page 533) was devised. This is, in its main lines, a rather ingenious



ISOLATION WARD (M)

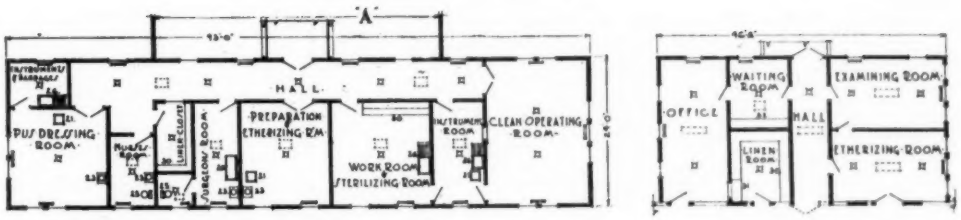


ISOLATION WARD (M')

MECHANICAL EQUIPMENT
1 Sink
2 Slop Sink
3 Urinal
4 Water Closet
5 Shower
6 Lavatory
7 Bath Tub
8 Dish Sterilizer
9 Electric Mains
Ceiling Height 10 feet

MISCELLANEOUS EQUIPMENT
20 Shelves
21 Dresser
22 Counter
23 Table
24 Ice Box
25 Dish Rack
26 Ceiling Light
27 Wall
28 Radiator
29 Ceiling Ventilator

SCALE
0 10 20 30 40



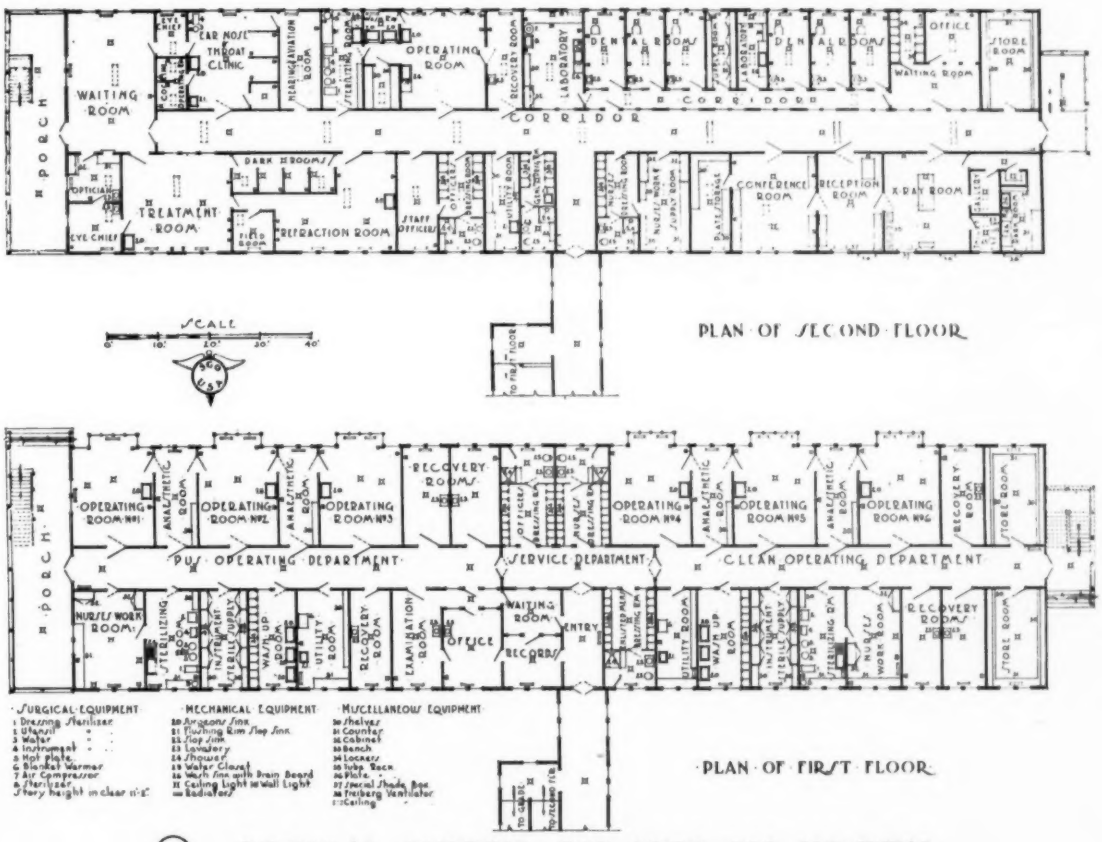
G · SURGICAL · PAVILION ·

· ADDITION · TO · G ·
LOCATED AT 'A'

plan, inspired by the temporary office buildings erected in Washington in the vicinity of Seventh and B streets for various departments of the Army and Navy, with which many of the readers of the Journal are familiar. The arrangement of plan, eminently fitted for an office building, was unfortunately totally unsuitable for the care of the sick.

The placing of 100 beds in an open ward was, as Captain Kettell says, a radical innovation—at least for hospitals 3,000 miles from the battle front—and the use of such a type of ward for an embarkation hospital to house men not yet immune from contagious disease is indefensible. It should be noted further that these 100-bed wards were 48 feet in width, with beds arranged in four rows, that the ceilings were but 11 feet 2 inches high, and that the window heads were dropped to 2 feet 4 inches below the ceiling.

The side porch, long since discarded in civil hospitals except in far southern climates, but retained in all climates by the Army, served to further reduce the amount of sunlight entering these wards, and as the buildings were two stories in height, there was no ceiling ventilation for the first floor wards. It is impossible to exaggerate the ingenuity shown in the bad planning of these buildings, both in the general conception and in every detail of execution.



G[1] · SURGICAL · BUILDING · FOR 2000 · BED · HOSPITAL ·

The so-called head house connecting the wards consisted of a corridor, with service and quiet rooms on either side. This corridor, as planned in the case of the hospital at Camp Mills, was 1,000 feet long without direct light or ventilation.

In October, 1918, a Committee on Army Hospital Plans, consisting of three architects, experts in hospital planning, was appointed by the Acting Secretary of War to examine and report on all plans being prepared in the Surgeon General's Office, and the first act of this committee was to protest against this Knox type ward plan. The then head of the hospital planning division of the Surgeon General's Office admitted to the committee that he did not consider this Knox type a good plan, that he had already given orders that no more should be built, and he assured the committee that no more would be built; but why was such an execrable design ever conceived or approved?

Criticism might also be made of the Isolation Wards M 1 and M, the lack of proper circulation in the former, and the lack of plumbing fixtures in the quiet rooms of both wards making them far below the accepted standards of civilian hospitals.

The Surgical Pavilion (G) with its operating room and "pus dressing room" at opposite ends of the building and the common sterilizing room and the surgeon's scrub-up room in contact with neither, is a masterpiece of poor planning. Captain Kettell failed to mention that, in the case of the National Guard Hospitals, the operating rooms were but nine feet high to the eaves, that no skylights were provided, and that as originally planned, these pavilions were without plumbing and unsheathed on the interior. The Surgical Building (G-12) for the Knox type of hospital is a very different building, but was only adopted in the summer of 1918, and the G-1 type was built in thirty-one of the thirty-two base hospitals, although protest was made against it in May, 1917.

In conclusion, Captain Kettell speaks of the constant communication between the designers of the Surgeon General's Office and the heads of the various departments of surgery, psychology, etc. If this communication existed, it is lamentable that no results whatever show in any of the earlier plans, with the possible exception of the laboratory and psychiatric wards, and that even up to the date of the armistice, the plans for general wards and contagious wards, the most important of all the elements of the hospital, show only a progress from bad to worse.

CHARLES BUTLER
EDWARD F. STEVENS.

To the Editor:

I agree fully with Mr. Butler and Mr. Stevens in their criticism of the claims made in the article on "Army Hospitals" which appeared in the October number of the Journal, and their further criticism of the various types of army hospitals, in which the commonly accepted principles of hospital orientation were ignored and which present many instances of bad planning.

RICHARD E. SCHMIDT.

[NOTE.—For the fuller information of our readers it should be added that Messrs. Butler, Stevens and Schmidt are all members of the American Institute of Architects. Mr. Butler was employed by the French Government in the design of its war hospitals; Mr. Stevens, as well as Mr. Schmidt, are among our foremost authorities on hospital construction. Some of the drawings referred to in the criticisms are published herewith in order to facilitate references. The others may be found in the Journal for October.—EDITOR.]

The Relation Between Architectural Training and Military Art

To the Editor:

Perhaps a discussion on architectural training and the possibilities of its value in war may seem untimely when we all are not, I trust, trying to forget the war and its lessons, but striving to adjust ourselves with all our power to peace problems, yet many points on the relations of such training and military science seem to me worth putting down.

I have often been asked by engineer officers: "What are you, an architect and artist (*soi-disant*), doing in the Engineers?" I, however, had an irrefutable answer: "If you have studied your military textbooks at all, you, of course, know the constantly reiterated statement, 'War is an art and not a science.'" War, in these days, touches every phase of human existence, and so we can leave out the self-evident usefulness of the architect in the manifold building work necessary both at home and in the field. In the field work proper, I am discussing the average skilful and well-trained architect who knows all sides of his profession, and not the mere office designer.

Of my own particular branch of the service, I will only say that it was the consensus of opinion of the higher commands that the architects were the best camoufleurs. The reason for this was very simple. The qualities needed were, familiarity with and ability to handle men, constructive ingenuity in emergencies, artistic knowledge, and tact. The engineer could, as a rule, handle men, and had the constructive ability, but usually lacked the artistic knowledge. The artist had the artistic sense, but usually lacked the executive ability. Architectural education and experience covers all these points, and if, between client and contractor, an architect has not developed tact, the Lord help him.

The education and experience of the architect is a better training for General Staff work in the field than that of any other layman who puts on the uniform in time of war. History tells us of innumerable military engineers who were architects as well as artists, and I need only mention Leonardo da Vinci, Michael Angelo, and Benvenuto Cellini as the first designers of fortifications of their time.

In the different sections of the General Staff, 1, 2, 3, 4, 5, the qualities needed are: the power to visualize from the map or drawing, imagination, coördination of all the various necessary steps, and the ability to execute, through their subordinates, the completed plans. The first need, that of ability to correctly read and interpret or visualize a map or diagram quickly, is surprisingly uncommon among officers. I should be ashamed to tell you how many times I have had to tell officers where they were on the map. Yet how few clients we have who can

read the drawings we make for them. But this is the very A, B, C of the architect, and he is immediately at home with any map or drawing. As to visualizing objects from the paper, that is his greatest asset; he visualizes even before he puts down a line, and continues to do so with every stroke or change he makes.

Imagination is, of course, a part of the same process, and the whole tendency of the architect's education and life is to cultivate it. Here also he has a great advantage over the average officer.

Coördination is of vital importance; the best-laid plan would avail absolutely nothing if the coördination of the various branches of the service, both as to time and space, were not properly made. If there is anything that is absolutely vital to the design and construction of a large building, it is coördination of work of every kind, and we practise it every day of our lives.

The plans and orders for a great offensive take as many words as the specifications for a state capitol, and would surprise the non-military man if he could read them through. They have a remarkable likeness to a specification, too, in their telling just what shall be done. I took, unofficially, the course with the first class of the General Staff College (I declined an official appointment to the Staff College later in order to continue my own work) and so am fairly familiar with these things.

Now, attacking a great problem in war is very similar to approaching a great problem in architecture. You have certain conditions which exist, and you have plans and maps of your site, and certain things to accomplish. Hear what Captain Budeke, a great authority of the German Army, and who is often quoted in English, has to say in regard to a military problem:

"By repeatedly and quietly reading the problem, paying due regard to the map in front of us, we gain, just as in focusing a telescope, a clearer and clearer conception of the situation.

"The longer we pore over the map, the clearer will be our conception of the measures which the situation demands.

"And in this it is important to hold and consider carefully, that is, to follow out to their furthest effects, all the thoughts and ideas which come to us, often passing like lightning through our brains, and suggesting various lines of action.

"Often it is precisely these fleeting thoughts which lead us to the right path. But thoughts which are not fully thought out cannot have a decisive influence on our judgment and decision.

"Only by intense reflection is found, in the confusion, the Ariadne thread which will lead us from the maze.

"However, although attention to details is to be recommended, yet the larger points of view must not be lost in their consideration, a mistake often leading to false conclusions.

"It is rather our chief duty to find these main points, and attention to details is but a means to this end."

With hardly the change of a word, this might have been written by a professor of architecture to his class, and it is a striking demonstration of the analogy between the two arts.

In a striking lecture after the armistice, one of the highest officers of the French General Staff stated to American General Staff officers that, in the future, the greatest generals would be those who had the greatest knowledge of the world and its activities, and he advocated the freedom of the highest officers from troops and the military life for considerable periods, and their assiduous application to intellectual pursuits tending to develop imagination.

Our officers have not progressed so far as yet, and most of them would be profoundly astonished at what I have written, but there is a decided movement towards such things developing in the General Staff at the present time.

EVARTS TRACY,
Late Major, United States Army

The Canadian City Planning Conference

In giving my impressions of the conference on city planning, held jointly by the City Planning Institutes of Canada and the United States, in Ottawa, October 17 and 18, it is necessary to explain that the point of view is that of the visitor within the gates. It was that of an outsider, primarily interested in the value of the plan to the community and only mildly concerned as to the various standards, dimensions, and regulations incident to a scheme. While the papers read at the meeting were ably presented and were of very great interest, yet the major part of the two days was devoted to matters which appeared to me to be of importance secondary to the main idea, which is the use of the plan. In this frame of mind my comments have to do chiefly with those things which were left unsaid.

No one will openly contest the theory that in its very essence the city plan is intended to serve the interest of the people at large and only incidentally any particular group or individual. City planning consists in vitalizing this proposition by the study and presentation of the physical plan and the ways and means of its execution.

The function of any plan, be it that of a town or a building, is to simplify circulation, not only by indicating the line of least resistance, but, what is of vastly greater significance, by seeking an arrangement in which movement is reduced to its lowest practicable terms. The problem as thus stated applies to a new scheme as well as to the heterogeneous accretion of buildings and streets in our established communities. It might be well to concentrate our attention on the latter, as it is of a more pressing nature and being vastly more difficult of solution is therefore of greater interest.

The arrangement of the great majority of our cities is based on a system of transportation which, compared to our present-day requirements, is slow-moving and of small carrying capacity. Urban population is grouped around one center, for it was unforeseen that the time would

arrive when a single meeting-place, no matter how spacious, could not accommodate the daily press of vehicles and human beings. The proper treatment of centers is the great modern problem of our cities. Under conditions of rapid growth a decentralization is the sole remedy for undue crowding. There comes a time in the evolution of a congested area when it can no longer be relieved by increasing the capacity of the highways which serve it. At this stage in its existence it becomes a saturated solution. This state of being commences when the total loss to the community due to the disadvantages of congestion balances the total gain to the community due to the concentration of business and living facilities. If it could be held at this point there might be no harm done, but as private ownership benefits abnormally in the first stages, at least, of overcrowding, any suggestion leading to the curtailment of profits is met with violent opposition. So in the great majority of cases the city planner has to be content with the feeble palliative of "improved" transit facilities or a new diagonal.

How should we deal with this phenomenon? Much as I was impressed by the intelligent discussion in the conference upon the capacity of arterial highways, I would have preferred to have been enlightened upon the capacity of the area which the highway is designed to serve. Why should diverging avenues be urged as a remedy for congestion when it is perfectly evident that what goes out must first have gone in. From the point of view of the plan, the terms "diverging" and "converging" are synonymous. The net result of widening an old or building a new street of this character is to increase the dimensions of the zone of suffocation. It allows the already dangerously high real estate values to be applied to a new ring of land. We are familiar with the expression "the gridiron plan gone crazy," but an evil of far greater menace to the welfare of our cities is the "diagonal running amuck."

The plan consisting of an endless repetition of rectangles is stupidity itself but only in a passive sense. It acts as a sieve and tends to separate effort into small and ineffectual units. But why waste time in talking about any other part of the street than its termini when they are the main sources of the trouble? The capacity of the interior terminus is strictly limited. A simile would be the street car, in which there always seems to be room for one more, but the time finally arrives when the elastic limit is attained and the doors must be closed. Until we recognize this fact and bend our efforts to the increasing of the number of foci instead of the feeders we will have contributed but very little of real and lasting value to the advancement of city-planning science.

While recognizing the validity of this argument it may be objected to on the grounds of its impracticability. Now impractical is a formidable word, but one which must stand the common test of analysis before being accepted. It depends for its force upon the unspoken thought that speed is the essence of the contract—a most unwarranted assumption when we consider for whom the plan is proposed and for whom it is wrought. Certainly not for men of the present generation. As the time necessary for the execution of a large project is counted in decades, not single years, it is evident that we are building not for ourselves but for our children's children. When we shall have saddled upon them a quite unworkable scheme, so expenive in operation it will have to be entirely recast, what will be their verdict? It does not require a very exceptional degree of intellectual honesty to accurately forecast the judgment. There is not the shadow of a doubt but that the coming generations will condemn the selfishness of their grandfathers who valued their own immediate profits above the welfare of their descendants.

How can a city plan be executed unless the principle of public control of land value is admitted? An individual would not embark upon a large building scheme unless the land had first been secured by purchase or option, for fear that a speculative value would at once be attached to the site. In city planning, however, we are asked to violate this most elementary rule of business prudence and, as a consequence, our ideas are to a large degree unworkable. The scheme of a metropolitan project must be based upon a sound theory of zoning and eminent domain; otherwise, it becomes largely an advance notice for the benefit of the land speculator. Thus, as has already been pointed out, the study of the ways and means must have precedence.

I hope that my friends of the City Planning Institute will forgive my frankness, but it would seem to me that public interest, not to say confidence, can be enlisted only by the open discussion of the basic points at issue.

JOHN IRWIN BRIGHT.

Post-War Committee—An English Opinion

To the Editor:

I am pleased to respond to the honor you do me by inviting me to express my opinion upon this important problem, which is being considered by American architects.

As I know full well that pioneers are not usually regarded as prophets, it is with some timidity that I express my views to such an enlightened assembly, but I venture to think they may be applicable in America as well as in Britain.

It appears to be clear that there is something wrong in the hitherto accepted methods of architects which has led, under the test of the recent Great War, to the neglect of architects and the consequent reflection upon the greatest of the arts.

Much has been written and suggested on both sides of the Atlantic about the cause and remedy, but, apparently, no very definite cause has been officially assigned and no panacea has been found or adopted. Yet, there is surely some sufficient cause and right remedy to be discovered. I venture, therefore, to express to you what has been disclosed to me very clearly and continuously during a practical and perhaps unique experience of about thirty-five years' practice of architectural work.

POST-WAR COMMITTEE—AN ENGLISH OPINION

Although there are some exceptional cases, there are, in my opinion, several pretty general shortcomings in the methods and the practice of architecture by architects which are perhaps in a lesser degree evident in America than in Britain.

Architecture is an art which has to meet the modern demands of the public as well as fulfil the behests of ancient traditions, and it is based upon anatomical science, and also finance, the dominator of all things earthly, without the consideration of which, in these modern times, the evolution of the art cannot advance satisfactorily.

Owing to the neglect by architects to embrace sufficiently scientific and financial considerations in relation to, in conjunction with, and as an integral part of the art of architecture, architects have been pretty generally slighted by the public, and this will tend toward the detriment of the art, if it be not sufficiently and promptly counteracted.

This state of things is also, in my opinion, probably due to the neglect by architects themselves to control architecture more fully by not entering sufficiently the portals of the Government, municipal and other controlling powers and taking their fair share in the direction of the affairs of citizenship, thus directing public opinion in the right and honest way in regard to affairs architectural and all that appertains thereto. It would doubtless not be congenial work for all artists, but good and suitable men could probably be found to do the work for which distinguished precedents exist. It is a clear duty born of citizenship, the fulfilment of which appears to me to be imperative if the best direction of art is to be obtained in the future world.

The adoption within about the last half century of the practice of the art of architecture, untrammeled by the essential anatomical sciences and largely irrespective of financial considerations, has disintegrated the profession and alienated the public, and these appear to be the most fruitful causes of the lack of public support of architects and of public appreciation and patronage of the art of architecture, both in America and Britain.

I do not suggest that there is not a considerable amount of support and appreciation, but I submit that it is too limited and that it is needed more universally.

The remedies would appear to be, in the first place, frank acknowledgment of the shortcomings of many architects and their work, and the official and general adoption of remedial measures such as:

1. Complete control by the architect as designer, director, and supervisor of all the art, science, and finance connected with the building or structure, and that is what I venture to think the general public in America as well as in Britain seek, but often do so in vain.

2. Education of students fully and comprehensively in all the essential equipment including science and finance connected with architectural work. American architecture has reached a high standard, influenced by the study of the art, science, and finance as inculcated by the tuition of American students in the École des Beaux-Arts in Paris, which is probably the most successful architectural school in the world. That tuition has proved effective in France for about a century past, and similar tuition would probably be efficient in the future world, with increased instruction in science, including certain so-called engineering work, and in financial essentials, all of which are inseparable from the practice of architectural art.

3. Stoppage of charlatans, insufficiently tutored students, municipal engineers, surveyors, and others from posing as architects, and thereby disgracing the art and discrediting architects. The general public would thus acquire confidence and learn that architects in the future, at least after a comparatively brief transition period, could control all the work and carry out the services required, including art, science, and finance, connected with the whole of the work of art from its inception to its completion; the whole work being based upon and executed in the future with honesty, sincerity and truth, without which no edifice can long endure but must soon disintegrate and fail.

4. Union of architects, their work, and kindred societies; also the official embracing of an architectural programme to include all subjects appertaining to architecture in order to attain one main ideal, teach the students, banish the charlatans, design and supervise to completion the work of art built by a contractor convert and lead public opinion, which will not be coerced but can be converted by the aid of the press.

It appears to me, notwithstanding some reactionary but probably temporary objectors, that a sufficient union of architects cannot be obtained without confining the practice of the art of architecture within a close profession with adequate state recognition, after acknowledging the fact that the art will not endure and progress sufficiently in any country in modern times by the work of a comparatively few architects. I conceive that this can only be done through the work of a large proportion of the younger men, particularly the students who should be all more fully equipped in all essentials of art, science, and finance in order to wage the future battle of the arts in this progressive and democratic world.

Art, like most other earthly things, is swayed by fashion, and I suggest that in future with all things architectural it should universally become fashionable "to be practical" as well as artistic, which need not, however, retard one iota the pursuit and attainment of beauty.

I have the honor to be, Sir,
Your obedient Servant,
JOHN MURRAY

F. R. I. B. A., M. S. A., F. S. I., Architect and Surveyor to the Commissioner of His Majesty's Woods, Forests and Land Revenues

The Inter-Professional Conference

The January Journal will report the conference held at Detroit on November 28–29, which will make, it is believed, the beginning of a concerted effort, by representatives of the professions, toward making professional service, as such, an independent factor in our social economy and not merely a marketable commodity.

British Housing Notes

Two New English Cities

To architects and lovers of architecture it would seem that nothing could be of greater interest than the news which comes from England about the building of two new cities. The first of these is, properly, a housing scheme identified with the metropolitan district of London. Some three thousand acres of land situated in districts joining London in and about Barking Town, Ilford, and Romford, at present largely used for market-gardening, will be acquired by the London County Council, which there proposes to establish a brand-new community, designed primarily to take care of overflow population from the city of London. £1,000,000 has been appropriated for the purchase of the land, and powers have been given to the Council to take it by compulsion if necessary.

This is the largest scheme yet developed under the new Housing and Town Planning Act. The project, as at present laid out, calls for the building of something over 20,000 houses, with accommodation for approximately 120,000 persons. It is expected that the project will require some five years from the date when the scheme has been approved by the Ministry of Health, to which body all such schemes must be submitted. In addition to this new community, the London County Council also has under consideration the building of some 9,000 houses additional. A scheme so comprehensive as this involves many complex factors. The area of land is particularly large—something over 5 square miles—and its transmission into a residential area will of necessity involve the improvement of transportation communication with the city of London. Under the provisions of the Housing Act the London County Council is not obliged to convert all of this land into building-sites but it may rent or lease the unused land for purposes of industry if deemed advisable. It is not beyond possibility that the garden-city principle may eventually become a part of this vast undertaking.

The Second Letchworth

The Garden Cities and Town Planning Magazine for October is entirely devoted to a second garden city, the prospectus for which has already been issued and the plans for which are now well under way. From the above-mentioned documents we quote as follows:

"The site is already secured; the first business is to study the lie of the land, to see how it may be drained and water provided. To provide the material for this study, in addition to what may be gained from actual familiarity with the site, a contour map is being prepared, using the ordnance data as a basis. Then a mineral survey will follow to ascertain the value of the soil.

The Industrial Area

"The most important thing of all is to settle where the main parts of the town are to be, and as in a garden city the efficient organization of the town for industry is the primary consideration, the industrial area has to be settled first. This is determined by the character of the land (fairly level land being needed for factories), by the position of the railway, by the roads, by a reference to the general amenities of the district, by the character of the industry for which the town is to be designed, and by many other factors. After the factory area come the commercial, business, shopping, and residential areas, each having to be studied in its relation to the rest in order that the town may be seen functioning as a whole. In all this, the direction of the new main roads, and how they will fit in with the roads that already serve the country round, the position of the surrounding towns, Hertford, St. Albans, and Hitchin, and the high roads to London have all to be borne in mind. All these matters, together with many others, provide the basis for the preparation of the town plan.

The Town Plan

"That there should be a town plan, drawn up in its main lines before development begins, and setting the new town in its relation to the countryside, is the first essential element in the building of a garden city. The preparation of this plan is not a merely architectural matter; profound sociological questions arise, and the principles of industrial economics have to be brought to bear. Moreover, it is not an ideal plan that is wanted, but a practical one, in which ways and means are carefully balanced. The demands that such a plan makes upon the imagination, the skill, the resource, the practical knowledge and the finest intellectual qualities of those who are responsible for it are immense. And even when it is done it will not be a final work, but will take further definition under the hands of the actual builders.

Construction

"After the plan comes the first work of construction. Certain roads will be made, the drainage system put in hand, and cottages erected for the workers on these jobs. The water-supply will be carried out, gas brought to the site, and an electricity supply provided. Sites will be laid out for houses for the managers and owners of works, sites for workmen's cottages (to be built under the Government scheme), sites equipped with railway sidings for works; the whole complex business will proceed together, until a community begins to be formed to take a hand in shaping its future. To begin with, the town will be in the rural districts of Welwyn and Hatfield, but as soon as a population gets together and the town has marks of independent life, a new urban authority will be formed.

"To build a new town is a great adventure, and those who take part in it will have experiences that they will value all their lives. The Second Garden City will be a town for good citizens, and those who can come to build there will do more than build houses and workshops, they will provide foundations for the life of the community and help to build up the State.

BRITISH HOUSING NOTES

Finances

"The financial aspect of the undertaking is important. In the first instance the public will be asked to find the capital for the cost of the land and the initial expenditure. As the estate shows a return as it stands, that money will not lack security; and there should be no difficulty in finding money for houses, factories and development in the ordinary way of business. The business-like handling of such an undertaking as this second garden city will result in first-rate security for capital."

In the Company's prospectus it is stated that:

"The enterprise will be conducted on sound business lines, and is believed to be capable of yielding a good return on the capital employed. The essence of the scheme is the conversion of agricultural land having a comparatively small value into urban land possessing a high value and producing building ground rents. Inasmuch as this process can be made profitable even in suburban situations where the original cost of the land is £400 to £2,000 per acre, it is obviously sound where the industrial and residential attractions are greater and the price of the land is comparatively negligible.

"The cost of the land to be acquired (nearly 3,000 acres) will be about £100,000. For the greater part of this land agreements have already been made at an average price of £32 5s. per acre, including much valuable timber. Before the war, development on modern site-planning lines cost about £250 per acre. Even assuming that it now costs £600 per acre (probably a high estimate) the garden city will have a considerable economic advantage over industrial areas nearer London. The land, including the initial expenses connected with the scheme, will have cost about £40 per acre, as against perhaps £400 to £1,000. So that, including development, building sites will cost only £640 per acre as compared with £1,000 to £1,600. Thus the new town can charge lower ground rents (for greater advantages) and yet obtain an ample increment for purposes of dividend, and after that for the general benefit of the local community.

"So many factors of the economic situation during the next few years are unknown that the Board is adverse to putting forward detailed estimates of the profits likely to accrue within any stated time, but it is of opinion that there will be no difficulty in meeting the proposed dividends. It should be noted that the existing income of the Estate shows a moderate return on the price paid for the land, and that this income will be maintained.

"It is important to note, also, that the security for the capital invested will continually increase with the development of the town and the creation of new ground rents. The strength of the financial position lies in the very low price at which the land has been secured, having regard to its favorable situation for early and successful development, and the imperative needs of the country for housing accommodation for all classes. Given careful and energetic management, the prospects of commercial success are assured, while the experiment cannot fail to be of great value to the community."

It would be an act of flagrant injustice to mention or to chronicle the birth of the second garden city without paying a tribute to Ebenezer Howard who was the founder of the first garden city of Letchworth. "Letchworth came into being," says the *Garden Cities and Town Planning Magazine*, "because Mr. Howard had associated with him a group of keen and able men who were determined to put his idea to the test."

Is it not time for the United States to produce a group of "keen and able men" with faith and vision? The Letchworth principle embodies the remedy for all our industrial ills, and it is a pity that a nation so boastful of its progress is still unwilling to discuss the underlying philosophy that governs industrial life.

Relaxation of Building Codes

The Ministry of Health has issued a memorandum to local authorities calling attention to the powers which such authorities may exercise during the ensuing three years in the erection and use for human habitation of buildings of a kind which may not be permissible under existing by-laws, but which comply with regulations made by the Minister of Health.

The regulations have been framed in general terms so as to leave a wide discretion to local authorities in regard to the materials and methods of construction which may be permitted. The walls may be of any material and construction which give sufficient stability and reasonable protection against the weather. The requirements as to foundations and roofs have been placed at the minimum necessary to safeguard life and health.

It will be open to local authorities to permit the erection and use as dwellings of army huts and similar structures. They can also allow various more or less permanent types of building which do not comply with the present by-law.

Provisions for the Adjustment of Contract Prices

A feature of a model form of contract for the erection of houses, issued to local authorities by the Housing Department of the Ministry of Health, is the inclusion of provisions which will allow for the adjustment of the contract price in the event of changes in rates of labor or costs of materials during the currency of the contract.

The Ministry consider that such provisions should be regarded as a purely temporary measure, and in their opinion it is very desirable that the system of lump sum contracts formerly obtaining in the building trade should be reverted to at the earliest possible date. With this object in view these provisions are to be regarded as transitory provisions, and it is hoped that there may be a gradually increasing number of cases in which a contract can be let at a lump sum without the insertion of these provisions.

There is also a provision that trade union or the standard rate of wages in the district shall be paid, as agreed upon by the National Board of Conciliation for the Building Trades, and confirmed by the Government.

Ex-Soldiers' Homesteads

A garden village with 500 homesteads for ex-service men and their families is the war memorial scheme which the Surrey Land Settlement Committee is about to place before Croydon Borough Council. It is proposed to

acquire 800 acres, and build six- or eight-roomed houses on 20-rod plots, and erect small homesteads on plots of about 2 acres. The scheme is estimated at £400,000. The tenants will eventually, it is hoped, form a self-governing colony, with a credit bank, public hall, and recreation ground.

Wooden Houses for England

The controversy over wooden houses rages fiercely in the English press. From these discussions it seems apparent that the Government's plan for housing relief, based upon the building of good houses, is slowly breaking down by reason of the high cost of land, as well as the high prices prevailing in the building industry. Added to these factors there is the difficulty of making loans, and the municipalities which desire to proceed with approved housing schemes are making very slow progress.

In view of these conditions, one is not surprised that the authorities are turning to wooden houses as providing relief from high costs and also quicker relief from the housing shortage than could otherwise be obtained. There are also to be reckoned with the determined efforts of Canadian and American ready-cut house manufacturers, and their propaganda is no doubt designed to suit their business purposes.

Remodeling Old Houses

It is not generally known that the new British Housing Act has been made applicable to the remodeling of old houses. Municipalities are given power to take over such properties, in case their owners will not adapt them to meet the housing shortage, and the work would then fall under the financial provisions of the Housing Act just as though the municipalities built new houses.

Coincidently, owners of old property may apply to the municipalities for a loan with which to remodel. They must furnish plans and estimates of cost, and may be lent up to one-half the value of the property. Repayments must be made at not less than half-yearly intervals, and the Ministry of Health suggests that the rate of interest be made ½ per cent more than that paid by the community on its borrowings. It is also required under the Act that houses so converted must be let to workmen only, as England has discovered that people in good circumstances are quite willing to avail themselves of the houses built especially for workers. Such a condition is not unknown in the United States.

News Notes

State Societies

Numerous inquiries having been received as to the attitude of the Institute toward State Societies, we again record the fact that the last Convention explicitly instructed the Board of Directors to encourage the formation of such societies and to invite their coöperation with the Institute and to invite them to be represented at Conventions.

Michigan Architects Tender a Dinner to Professor Lorch

Under the auspices of the Michigan Chapter, the architects of that state tendered a dinner to Professor Emil Lorch, of the Department of Architecture of the University of Michigan, on the evening of November 1 last. The dinner was given in recognition of the professional career of Professor Lorch, and also in appreciation of his public service in many capacities. During the course of the evening there was launched a definite movement to make the College of Architecture of the University of Michigan a separate school (it is now included in the Department of Engineering), and many letters from prominent architects were read in approval and support of such a course.

Strand's £2,000,000 Building

The London press has given a good deal of space to "the permanent industrial exhibition" which is the official description of the vast £2,000,000 building which will be erected by the Bush Company, Limited, on the Strand Island site, often spoken of by commercial men as the finest business site in Europe.

The London County Council, after informing the Government of the company's proposals to secure the site, and having learnt that the Government was not contemplating the use of the site for their own purposes, have agreed to let it to the company for 99 years at a rent of £55,000 a year. The building will consist of only eight floors, and will contain many features more familiar to American than British manufacturers, such as central salerooms, stocked with goods, where buyers will be able to meet, conference rooms, libraries, commercial intelligence bureaus, and a club and restaurant. The object is to provide a central place where buyers in a hurry, who have not the time to search London for goods, can meet the manufacturers. A start will be made with the luxury trades, and small articles such as china, glass, leather goods, and boots will be included in the opening exhibition. Much regret is expressed that the site in question could not have been used for a truly English enterprise.

Developments in Public Works Construction

News comes from England that there has been a considerable adoption, on public work, of the system of letting contracts as evolved by the Ministry of Munitions. Under this system the client agrees to pay the costs expended by the contractor, as based upon an estimate prepared upon priced quantities under the quantity system obtaining in England. The client agrees to pay a fixed profit on this cost, giving the contractor an additional percentage of profit upon all he may save from the net cost agreed upon, but no extra profit upon extra cost exceeding the cost agreed except, of course, upon extras legitimately ordered.

NEWS NOTES

Now that the agitation for a Department of Public Works is actively under way in this country, it is perhaps pertinent to dwell upon the fact that in two recent important undertakings by the Government, namely, the assay office in New York City and the post office and custom house in Honolulu, only two bidders could be found for either job. The present unbusinesslike administration of public work finds little favor anywhere.

"Architects and Big Bridges"

Under the above title, there appeared in the Emergency Bulletin of the *Engineering News-Record*, the following:

"A surprising bridge-engineering situation has developed in Pittsburgh, where two large and difficult bridge problems, the 16th and 40th Street bridges, are in the course of design. One or both may include a steel arch of 500-feet span. While these structures obviously represent engineering responsibilities of magnitude, the County Commissioners (Allegheny County) have given full control of both design and construction to *architectural* firms. Early reports of this transaction seemed to indicate that the architects were merely consultants on esthetic features of the bridges, but official statements now show that the architects hold contracts for making plans and specifications and supervising construction on a fee of 6 per cent of the total cost.

"While it may be too late to alter this situation, since the contracts have been signed, the question raised is so fundamental as a matter of public policy that the advisability of the procedure must be called into question. Bridges of this magnitude are essentially engineering, not architectural, problems, and the interests of the public demand that they be placed in the hands of those thoroughly competent to take full responsibility for the technical adequacy of the structures. It is, moreover, a type of question in which there should be agreement between engineers and architects, for whatever fails to serve the public interest must, in the end, be detrimental.

"We do not doubt that the architects in question will endeavor to hire competent engineers to do the work for them, but the matter is one of principle. Shall the community turn over its big technical problems to those competent to answer for their adequate solution, or shall they turn them over to brokers?

"It is the duty of the engineers of Pittsburgh to inquire into this situation. They will want to be frank, too, with the architects of their city, for the problem passes beyond a case of pique to one branch of the constructive profession."

It seems very regrettable that such an exhibition of wounded pride and vanity should be permitted to masquerade as a noble effort toward protecting society. We do not believe that such opinions are shared by engineers of repute, but that they, as well as architects, regret these attempts to construct a chasm between the two professions.

It is evident to any simple-minded person that a bridge requires the services of architect and engineer. To deny this would be an affirmation of the belief that culture has no place in civic life, and that it must be sacrificed to brutal strength or utility. As for the rest of the argument advanced, could anything offer better proof of the desirability of a permanent organization, such as that discussed at the Inter-Professional Conference in Detroit, on November 28–29? Instead of having the professions "dig themselves in," as is proposed in the above article, a group of larger-visioned men proposes to set up the means of genuine collaborative effort, to the end that our towns, states, and nation may be rescued from a competitive system based on profit and vanity, and placed on a basis where every technical service may be used for the best good of the public involved. It is to such an organization that we recommend this and any future similar articles.

Uniform Rules for Bids and Contracts

The San Francisco Chapter has been earnestly at work in considering the establishment of uniform rules for the submission of bids and the letting of contracts. It has been in consultation with the General Contractors' Association, and, as a result, it is now proposed to form a permanent organization representative of all the interests involved and which shall be charged with the formulation of rules governing the duties of all parties in the submission of bids and the letting of contracts. Mr. William Mooser is Chairman of the Committee for carrying on this work.

First Pan-American Congress of Architects and First Pan-American Exposition of Architecture

In conjunction with each other, the two events mentioned in the title will be inaugurated at Montevideo on March 1, 1920. American architects are invited to participate in the exposition and to forward drawings and photographs of their work. Students' work may also be admitted.

For the work of architects there have been established one or more Grand Prix d'Honneur with gold medals, First Mentions with silver medals, Second Mentions with silver medals, and Merit Diplomas; for students there are gold medals, silver medals, First Mentions and Merit Diplomas.

The award of all these prizes will be made by an international jury.

Any one desiring to exhibit should apply to the office of the Journal for a complete program.

The Sin of Ugliness

Speaking at a meeting in London, the Rev. Percy Dearmer said: "Nearly every church is full of bad art. You cannot attract people by offering them various forms of ugliness. It is Beauty that they want,—a fact that churches seem to overlook. There is hardly a church that the artist would not like to whitewash from top to bottom." We fear that his indictment contains more than a grain of truth, by and large.

Proposed French Housing Law

France has her housing difficulties. News come to hand of the proposed housing bill discussed by the Senate. The bill appears to be largely confined to dealing with

profiteering in rents. It is computed that, since 1912, Paris has increased its population by half a million, while houses have increased but little. From about 900,000 in 1902, there were 993,000 in 1912, and 1,039,000 in 1919. Rents have increased greatly, in some cases as much as 150 per cent, and it is said there is not an announcement of "Flat to Let" to be seen in the whole of Paris. On the contrary, there are numbers of notices to apprise the seeker that there is "Nothing to Let in the Building," in order to save the time of the homeless wanderers.

City Planning in Los Angeles

The October meeting of the Southern California Chapter brought forth the news that the City Council had been requested to take steps toward drafting a city-planning ordinance for the city; that the Chapter's President and Secretary had called upon the Mayor to reassure him of the Chapter's interest in the question and offering its services in connection with city-planning work.

City Planning Commission for Philadelphia

Under the terms of its new charter, the city of Philadelphia is permitted to create a city-planning commission. The Philadelphia Chapter has been actively at work to create a public sentiment in favor of such a commission, and, in connection with other societies similarly interested, held a large public meeting in November. As a result a committee has been secured to prepare an ordinance and to urge its acceptance by the city.

Building Contract Practice

The last meeting of the Illinois Society of Architects was devoted to a dicussion of building contracts. There were speakers who advocated the lump-sum contract and others who were more or less in favor of the cost-plus-percentage, the fixed-fee-plus-cost, and separate contracts for the trades. The meeting apparently came to no decision on the question, but, in respect to certain conditions prevailing in Chicago, it unanimously passed the following resolution:

"That we deplore the present practice of many of the general contractors in Chicago who are doing work on a cost-plus-percentage basis, in paying large bonuses to building mechanics; that we believe that such practice is doing much to continue the unrest in the ranks of labor, and that we urge upon the Building Construction Employers' Association the utmost importance of immediately discontinuing this practice."

Architects and War Work

Captain Charles H. Alden, addressing the Washington State Chapter on the subject of his experiences in war work, both here and abroad, pointed out the many difficulties encountered in the effort to get things done. His experiences showed the need of reforms in the army, and in conclusion he called attention to the fact that during the war the architect was not given his rightful place in the army and that, as it now stands, the Engineering Corps is to take over entirely all construction, including the work of the Construction Quartermaster. He voiced the opinion that the Institute would do well to take some steps to procure proper recognition for the architects. A committee was appointed to take up the matter.

Annual Convention of the Iowa Chapter

This event took place at Ottumwa, Iowa, on October 23 and 24. N. Max Dunning, Chairman of the Executive Council of the Post-War Committee, addressed the meeting on the subject of the Committee's work and program. The President of the Institute was unable to attend but sent a cordial message of greeting. The new officers elected were as follows: President, Allen H. Kimball; Secretary-Treasurer, Eugene H. Taylor.

Architectural Guilds

At the last meeting of the Washington State Chapter, the Committee on Relations of Draughtsmen to Architects presented the following recommendations; they were adopted by the Chapter:

"1. That the Architectural Guild, upon the adoption of a constitution and by-laws satisfactory to the Executive Committee of the Chapter, be given the privilege of the use of the sub-title 'affiliated with the Washington State Chapter of the A. I. A.,' such affiliation to remain in effect so long as the Guild upholds the principles and ideals of the A. I. A., or until the privilege is withdrawn by action of the Chapter.

"2. That such affiliation be further expressed by giving to the Guild the privilege of attending the annual meetings of the Chapter.

"3. That invitations be extended to the Guild to attend such other meetings of the Chapter as might prove of interest to the members, such invitation to be given to the Secretary of the Guild by the Secretary of the Chapter, by action of the Executive Committee.

"4. That a standing Committee of the Chapter be appointed to serve as a means of communication with the Guild through a like committee to be appointed by the Guild.

"5. That the Chapter, collectively and individually, encourage and contribute in every way possible to the educational efforts of the Guild along cultural lines.

"6. That one joint meeting of the Chapter and the Guild be arranged each year, at which subjects of mutual interest be discussed, and a spirit of mutual understanding and respect be fostered.

"7. That the Guild be regarded by the Chapter as a recruiting-ground for future Chapter members, and to that end every means possible be devised to acquaint the members of the Guild with the principles and ideals of the A. I. A."

England and Her Art Treasures

It seems rather curious that England should feel herself in danger of losing many of her art treasures, and yet the appeal of the National Art Collections Fund distinctly hints at such a contingency. Many estates are being broken up (indeed it is reported that more land has been sold in England in 1919 than during the last 500 years!), and there appears to be a feeling that many objects of art may

be dispersed and lost to the country. It has been suggested that an embargo, similar in principle to that adopted by Italy, be laid upon works of art, but the suggestion is referred to as a "counsel of despair," since the probability is that it would only stimulate smuggling by whetting the appetite of conscienceless collectors.

The prices paid for pictures at the auction sales in London, and which set continuing high records, indicate that there is plenty of money available for art, but whether the purchasers are acting for English or foreign collectors does not always appear, although it is announced that the Romney portrait of the Misses Beckford, just sold at auction for above $250,000, was bought for a New York purchaser.

"The Mocking Bird"

As indicative of the state of the arts and their popular appreciation, one will find it hard to believe that the paragraphs reprinted below were clipped from a weekly newspaper published within thirty miles of New York City, yet it is so. Only the names of persons and places are omitted:

"The Mocking Bird," a musical comedy will be produced at the Palace Theatre next Tuesday evening, Nov. 23rd. The production necessitates the action of about seventy-five persons in various assumption of characters. Among the cast will be not only gentlemen of dramatic ability, but ladies of beauty and venus-like of form and feature, while also being endowed with unusual theatrical talent. The situation is Colonial as to period; musical largely, and effectively scenic. The staging is noticeably picturesque, and is under the direction of Dr. ———. The necessity of a musical director of extraordinary ability to harmonize a production of the like, can be only partly imagined by theatre attendants. However, ——— audiences realize that no matter what betides, we have in our vicinity a musical director whose name—that of ——— —means musical erudition of extraordinary concentration.

To ———'s strenuousness, technique and arrangement of musical situations; with also the staging under the direction and close inspection of Dr. ———, whose work is, to our mind, almost the equal of professionalism, and in addition, the gathering together of each and all taking part in this presentation; mean that the Palace Theatre will be not only filled, but many will be unable to gain admittance, unless seats are secured quickly. A large orchestra under direction of Prof. ———, will harmonize. Many beautiful women, and a wonderfully clever performance, next Tuesday night at the Palace Theatre, with the commendable sensation that one is adding to the ——— Nurses' Fund; mean much enjoyment and great satisfaction. Remember, "The Mocking Bird" is not motion pictures, but superb acting and music.

Tickets may be had at theatre box office.

A Pertinent Question

How shall the professional spirit take courage to break through the network of defences now maintained by private initiative and put its knowledge and skill squarely at the public service? It is the height of folly to suppose that business, commerce, industry, labor, politics, or any other group of material activities can rescue mankind from the morass in which it now flounders. Only truth, knowledge, science, used professionally as public service, can point the way.

President Holsman, of the Illinois Chapter, in an article in the *American Contractor*, deals with this hiatus in our civic life, and asks the same questions:

"How can the professional technical man apply his motive power and his mental processes to civic progress? First of all there must be created a professional class consciousness. The public must be conscious of the nature of the professional mind—the training it has been subjected to—and it must be conscious of the extent or numerical strength of the professional class. The professional class must be conscious of itself, and conscious of its ideals and its duty to the whole public, and it must lift higher and higher the banner of SERVICE and fix itself immovably upon the principle that public interest must have precedence over self interest." . . .

"An example of the use of the professional class for the public good may be seen in an analysis of the recent conference on industrial conditions in Washington. It was a comparatively easy matter for the President of the United States to summon to Washington men representative of the employee class. It was doubtless comparatively easy to find able representatives of the employer or capitalist class; but one must assume that it was very difficult to find representatives of the public or the middle class, for we find as representatives of the public such men as the head of the great organized steel industry and such men as the head of the oil monopoly attempting to function in a conference of national moment as representatives of a class having no prejudice for or against either the capitalist or the laborer. I venture the assertion that if the professional classes were one-half as well organized and visualized as the laboring class today is, or as the capitalist class has been for many years, it would not have been difficult to select from the professional men those who were able to weigh and balance contending principles of the opposing classes, to survey and evaluate the motives of action and reaction and to render a just balance between the two."

[Unfortunately, the absence of disinterested knowledge and science seems to be as conspicuous in the second conference as it was in the first.—EDITOR.]

Obituary

Charles F. Schweinfurth

(further notice later)

Hill C. Linthicum

Elected to the Institute in 1913
Died at Durham, N. C., October 6, 1919

Mr. Linthicum was born in Virginia in 1860, attended school at the Danville Military Academy, studied architecture in Baltimore, and entered the office of his father, Mr. W. H. Linthicum, at Durham, N. C., about 1883, practising continuously in that city up to his death. He had made an extensive study of school buildings, of which he had built about forty.

Structural Service Department

SULLIVAN W. JONES, *Associate Editor*

In connection with professional societies, organized bodies, and the following Committees of the Institute, working toward improvements in building materials and methods, and higher ideals in the sheltering of humanity:

BASIC BUILDING CODE, CONTRACTS, FIRE-PREVENTION, STRUCTURAL SERVICE

Roofing, continued

Prepared Roofings

Classification

Prepared roofings may be classified with respect to the nature of the bitumen used in their manufacture. Those in which coal-tar pitch is used are known as tar roofings, and those in which asphalt compounds are used are referred to as ashphalt roofings. Seldom, if ever, are both of these bitumens used in the manufacture of one product. The saturant for the felt base and the material used for coating are compounds of the same bitumen, except in a very few instances where stearine coating is applied to asphalt-saturated felt. Prepared roofings may be classified also with respect to surface treatment or coating, and without regard to the nature of the bituminous material employed in their manufacture. The smooth-surfaced roofings are described by the generic, but improper term, "rubber" roofings, and sometimes by the term "skin-coat." The other class includes all those roofings with exposed surfaces composed of crushed slate or sand or other granular mineral matter. Bituminous shingles are cut from material of the latter class.

Manufacture

Felt Base. All prepared roofings, whether rolled or sheet, and all bituminous shingles, no matter what the character of the surface treatment, are manufactured with a saturated felt base. (For the character and properties of the felts used, see Journal of the A. I. A., October, 1919, pages 461 and 462.) In some of the heavier multiple-ply roofings, a reinforcing fabric, usually burlap, is used, presumably to give the roof the tensile strength required to safeguard it against tearing or stretching in handling.

Saturation of Felt. The felt is saturated by passing it slowly through a tank containing the heated bitumen and then through rolls. (For the character of saturants see Journal of the A. I. A., August, 1919, pages 376 to 378).

Weights and Plies. After the felt is saturated it is coated with bitumen on one or both sides, as the process may require, by passing it through rolls. The two thicknesses of felt for two-ply roofing, and three thicknesses, or three-ply, are then pressed together and cemented by the bituminous coatings. The felts used are of various thicknesses and weights, and while a two-ply roofing may be composed of two thicknesses of felt, it may be thinner and lighter than a single-ply roofing of another make or another brand. Examinations of cross-sections of the two- and three-ply roofings now produced indicate that the amount of bitumen used for cementing the layers of felt together is the absolute minimum required for complete adhesion. The fact that the life of bituminous roofing, particularly of tar roofing, depends largely on the quantity of bitumen used, seems to be very generally neglected in the manufacture of prepared roofings. It is this requirement principally that has made five-ply built-up roofing the standard of good practice. Cross-sections of prepared roofings made twenty or more years ago, which have, in many instances, given good roof-protection for periods of fifteen to eighteen years, show substantial layers of bitumen separating the plies of felt.

Most of the slate and sand-coated roofings have the same felt base as the so-called two-ply smooth-surfaced roofings, but they appear much thicker than the two-ply roofings because the upper surface receives a heavy coating of bitumen into which the slate or sand is pressed. This coating must be heavy in order to hold a sufficient quantity of the surfacing material. (For further information on single and multiple-ply roofings, see Journal of the A. I. A., August, 1919, page 376.)

Coating. The smooth-surfaced or "rubber" or "skin-coat" roofings, all except those in which asbestos felt is used, are coated with bitumen on the exposed or wearing surface. The single-ply material is generally coated with bitumen also on the under side. The bituminous coatings on the exposed surfaces are usually dusted with finely ground soapstone or talc to prevent sticking in the roll. For the same reason, the bituminous coating on the under surfaces of the single-ply material are often dusted with a very fine sand. The coating of sand on the under surface also prevents the roofing from adhering to the sheathing, a condition which in time results in breaks and leaks if the sheathing moves, and it usually does move to a greater or less extent.

Some few manufacturers claim that the surface coating for their better brands of prepared roofings is composed wholly or in part of "stearine gum," probably stearine pitch, an animal or vegetable by-product from the manufacture of candles. Stearine gum or pitch is less affected by sunlight than the bitumens and is less inflammable. Insufficient data are available to establish whether or not stearine gum, as a roofing material, retains its elasticity for longer periods than a carefully compounded asphalt or skilfully prepared coal-tar pitch.

Wax tailings, a by-product from the manufacture of paraffin, and rosin are also used in combination with asphalt. The rosin is used as a flux. It imparts brittleness to the finished product in proportion to the quantity used. Its use should be avoided.

Packing. The single- and two-ply prepared roofings, including those surfaced with a granulated mineral, are shipped in rolls containing enough material to cover net 100 square feet of roof surface. The three-ply roofings do not roll readily and are subject to damage, if rolled, from compression of the inner surface and stretching and rupturing of the outer surface. It is better practice to cut these heavier roofings into sheets and pack them in crates. The asbestos roofings, both two- and three-ply, are of necessity cut into sheets and crated for shipment.

The quantity of seam cement and nails required for laying each package of roofing are generally included in the package.

Manufacturers' Instructions. Directions for laying rolled prepared roofings, as issued by fifteen manufacturers, have been carefully examined and compared, with the expectation that such a study would disclose a fairly general agreement among manufacturers with respect to methods of application.

There were two points on which enlightenment was particularly desired: First, the means of overcoming the tendency of prepared roofings to wrinkle after application; and, second, the measures recommended to prevent the development of leaks about the nailings of lapped joints. Direct reference to wrinkling is made in only one of the printed directions. None of the fifteen manufacturers suggests adequate protection for nailings.

A brief summary of these directions as they relate to each in the process of laying will serve to indicate that there is no general agreement among manufacturers on many of the more important points in the problem of discovering the best method of application.

Direction of Strips. In his circular of instructions, one manufacturer says that on very steep roofs the strips should be laid parallel with the slope from ridge to eaves, and on other roofs across the slope, or parallel to the eaves. Two others state that the strips may be laid in either direction with equally satisfactory results on all but flat roofs, where the strips should be laid across the slope. One states that laying the strips parallel to the slope from ridge to eaves is a method that cannot be recommended. The other eleven make no distinction between the two methods.

Wrinkling. Only one manufacturer gives directions to overcome the characteristic tendency in prepared roofings to wrinkle after laying. He advises nailing one end of the strip and then grasping the other end in the hands, shaking and pulling it until it is straight and smooth. The strip is then tacked temporarily in place and the nailing proceeds from the fastened end.

Warming the material during cold weather before it is laid may have some effect in overcoming the tendency to wrinkle, because experience teaches that it does expand slightly under the effect of a hot sun. But very evidently the principal reason for warming the material is to prevent it from developing surface cracks when it is unrolled. Two of the manufacturers say that the material should be unrolled and allowed to lie flat for as long a period as possible, and not less than one hour, before it is finally laid in place. This is for the purpose of allowing it to straighten itself. One of the manufacturers advocating this precautionary measure states that the material should be laid only on "warm, sunshiny days." Three of the circulars make no mention of the necessity of warming the material when it is to be laid during cold weather. The rest merely say that the rolls should be stored for one or more days in a warm room and taken on the roof only as needed.

Seams and Laps. All of the fifteen manufacturers agree that the edge laps between strips of roofing on sloping roofs should be 2 inches wide. Both 3- and 4-inch end laps are advocated. On flat roofs, two of the circulars state that the laps should be 6 inches wide and cemented with hot asphalt. Three others recommend 4-inch wide laps, and make no mention of the use of any special cement. The others make no mention of any special precautions to be taken in laying flat roof-coverings.

All of the directions state that the laps should be thoroughly cemented with cement provided for the purpose. All but the one who starts nailing at one end, state that the nailing should be begun at the middle of the strip and carried in both directions. All direct that the nails should be about 2-inch centers. One directs that the nails be staggered to avoid the possibility of splitting the sheathing. Six of the circulars direct that the seams and nail-heads be coated with cement. One directs that the same work be done with hot asphalt. Another is against coating the seams and nails. One advocates the use of tin caps and another says that they should not be used. Five make no reference to the coating of seams and nail-heads.

One manufacturer states that he furnishes special sherardized nails with his material. Another states that the nails used should be galvanized. All of the others state that large-headed nails should be used, but do not give any further description. The probable reason for slighting the subject of nails is that most manufacturers furnish nails with the roofing and it is to be assumed that nails so furnished would be used.

Two of the manufacturers state that their roofings should be painted with a coat of good asphalt paint at the end of the second year after laying and every three or four years thereafter. One states that his material should not be painted. The other thirteen make no mention of the need or absence of painting roofs after laying, although there is nothing in their advertising matter to indicate any essential differences in their products.

Flashings, etc. The printed directions for flashing roofs and for finishing at gutters, eaves, and ridges, and descriptive cuts accompanying them, show a very general agreement on method. The differences are confined to very minor points.

Application. Prepared roofings should be applied up and down the roof slope, from ridge to eaves, and the nails covered with wood strips backed or grooved on the under side and filled with roofing cement before they are nailed in place. The wood strips protect the nails as well as the bituminous cement with which they are filled against attack by the elements and sunlight. The bituminous cement, if not so protected, will fail in a relatively short time to seal the nailings against the penetration of moisture. When not so protected it usually shrinks and "alligators." The only reason why the application of roofing from ridge to eaves is advocated, is that the wood-cement-filled seam-strips can not be placed horizontally.

Some of the prepared roofings made a number of years ago had flaps along one edge which were cemented down

over the nailed seams. Such roofings may now be procurable but they are not among the large number that have been considered. Prepared roofings with this feature should be applied across the slope or parallel to the eaves.

It is better, when the roofing is applied across the slope, to begin at the ridge and work down, rather than the reverse, and contrary to the directions of the majority of manufacturers. Beginning at the ridge involves a little additional labor, but there is less likelihood of injury to the material, for it is not walked over and worked upon after laying.

All prepared roofing should be unrolled and allowed to straighten and stretch before it is applied to the roof, and in application every effort should be made to lay it flat and without wrinkles. If the nailing is begun in the middle of the sheet, the two ends should be pulled outward as the nailing proceeds.

General Observations. Prepared roofings with a wearing surface of granulated slate or sand or other mineral are generally longer lived than smooth-surfaced roofings made with the same felt and the same bitumen. This is so because the mineral surfacing protects the bitumen from the deteriorating effect of water and sunlight, and because a heavier coating of bitumen must be used in the manufacture of mineral-surfaced roofings than is required for the smooth-surfaced product.

The field of usefulness for prepared roofings is undoubtedly confined to sloping roofs. The life of prepared roofings, particularly the single- and two-ply, is short when used as deck-covering. As the material ages it becomes brittle, and every wrinkle is a danger spot. The nailings, too, are weaknesses, even when coated with cement or hot bitumen. As the roofing ages it shrinks and shows a distinct tendency to draw away from the nails. In flat roofs which flood in heavy rains or shed the water slowly because of wrinkling, this condition results in leaks. Sloping roofs shed water rapidly, and leaks from this cause do not seem to occur.

Tinned caps should not be used in connection with nailings. They require frequent painting to prevent corrosion. If caps are used they should consist of small pieces of the roofing material itself. It is doubtful whether the use of special metal nailing clips or cleats has any distinct advantage except that they make possible a material reduction in the number of nails used and, therefore, in the chances of leaks.

Unless the roofing is applied for the most temporary protection, all nails used should be sherardized or heavily galvanized.

Applying a coat of setting cement or hot bitumen over lapped seams and nailings, unless this is itself again protected, is a waste of money.

(*To be continued*)

Architectural Acoustics

CLIFFORD M. SWAN, S. B., A. M.

Of the many technical problems with which an architect is from time to time confronted, not the least important is that of architectural acoustics. In churches, courtrooms, lecture halls, and the great auditoriums of monumental buildings, it ranks equal in importance with lighting, heating, and ventilation. Strange to say, only within the past twenty years has there been developed a definite science applicable to the design and construction of buildings, as well as effective materials for correction and a technique of their installation.

It is remarkable that in no other field of technical knowledge have antiquated ideas yielded so slowly to oft-repeated experience. At last, however, through the results of scientific investigation, the useless stringing of wires is being discontinued, while the sounding-board, moderately useful at times, is not now considered an universal panacea, and simple ratio between length, breadth and height is no longer looked upon as an adequate basis for acoustical design.

Broadly, the subject of architectural acoustics may be divided into two parts: The transmission of sound through floors, walls, or other partitions into rooms situated apart from the source; and the phenomena arising within a given room or auditorium due entirely to factors of interior design and finish as affecting sound, either generated within the room or entering from without.

Sound-Transmission. The first of these divisions, that of sound-transmission, is but just beginning to receive scientific attention, and the amount of reliable data at hand is small. The problem of deadening walls or floors is quite as much a question of construction as of deafening materials. The importance of the former element has not been appreciated, while even in the case of materials themselves, trustworthy figures are lacking as to their efficiency.

The common practice in the past seems to have been to design a material with especial reference to its heat-insulating qualities and then arbitrarily to assume corresponding properties for sound-insulation, an assumption wholly unjustifiable both in theory and practice. Such success as may have been attained in actual installations is to be attributed to practical experience in work of this character, which has shown some of the pitfalls to be avoided, rather than to definite and exact information. In the present state of the subject, no one can predict with assurance the degree of efficiency to be obtained from any given form of construction or material. Research is, however, progressing along these lines, and the time is doubtless not far distant when at least the principal factors in the problem will be capable of analysis.

Auditorium Acoustics. In marked contrast to the uncertainty surrounding the transmission problem, is the definiteness attaching to the other great division of architectural acoustics, that of the so-called internal acoustics of an auditorium. In this field, much careful scientific investigation has been done, notably by the late Prof. Wallace C. Sabine, of Harvard University, which merits thoughtful consideration by all designers or owners of large auditoriums. Sabine's researches have been published from time to time in the architectural and engineering press and have been supplemented by the work of Jaeger and others. They form the basis of all modern practice. The result has been to make possible not only the correction of existent auditoriums but also the design and construction of new ones in a manner such as to obviate all difficulties from the outset.

While much of the success to be attained in this direction must of necessity be a matter of expert consideration and advice, on account of the complexity and inter-rela-

tion of the various phenomena involved, yet the various factors entering into the problem should be a matter of common knowledge in order that there may be a due realization of their importance and possibilities of control.

The phenomena influencing the acoustics of an auditorium may be classified under the heads of reverberation, echo, resonance, and interference, and these must be studied with regard to their effects upon the distinctness and loudness of speech, and the tonal quality of music. As is to be expected, they are not entirely independent one of another; nor are they wholly unmitigated evils in themselves, their presence to a limited extent often being necessary and desirable if not carried to an extreme. The essential factors which influence and control them are the size and shape of the chamber, the contour of the interior surfaces, the nature of the construction and finish, the amount and kind of furnishing and the number of persons present, in so far as these factors affect the reflection, diffraction, and absorption of sound. Refraction, caused by currents of air of different densities arising from the heating and ventilating, may conceivably become a factor, but has been shown to be negligible under almost all circumstances.

Reverberation. The most common source of trouble is reverberation, more so today than formerly, owing to modern fireproof construction. In the technical sense, reverberation signifies the prolongation of a sound by its multiple reflection from surface to surface before its energy is sufficiently absorbed to become inaudible. Since the average sound must be reduced approximately to one-millionth of its original intensity before it reaches the limit of audibility, and since such a sound once produced in a bare room loses but from 2 to 4 per cent of its energy at each reflection, it is evident that such a sound must be reflected several hundred times before it becomes inaudible. Since this process consumes time, owing to the finite velocity of propagation, the sound is prolonged for a period of several seconds after the original source has ceased to emit energy.

The period of reverberation is evidently inversely proportional to the absorbing power of the room, and directly proportional to the size, since the distance traveled by the sound-wave between reflections is greater the larger the room. Its effect, if present in excessive amount, is, as noted, to prolong every sound to such an extent as to cause an overlapping and blurring which is especially distressing in the case of speech. For this reason, in an auditorium intended for speaking alone, it should be reduced as far as is consistent with the carrying power of the sound. It is important to bear in mind, however, that as the reverberation is reduced, the loudness is diminished in very nearly the same ratio, so that there is necessarily a limit to the amount of permissible absorption. In the case of an auditorium used for music, a greater amount of reverberation is desirable than in one used for speaking only, in order that the overtones may not be obliterated (high pitches being more readily absorbed than low) and the quality of tone destroyed. The time of decay of a sound can be calculated with a considerable degree of precision, and the proper design or treatment laid out which will reduce the reverberation to the amount best suited for the room under consideration.

The amount of reverberation can be controlled in various ways. As already shown, it decreases with the size and height of the room, other factors remaining constant. It is also diminished by the presence of recesses or balconies designed to hold a number of people or heavily upholstered seats. Draperies, carpets, furniture, and upholstery are all effective in proportion to their absorbing power, lined and heavy materials being naturally much more efficient than light and thin ones. The clothing of an audience is an important factor, being nearly totally absorptive of sound, and many an auditorium which is exceedingly bad when empty is entirely satisfactory when filled with people. Oftentimes, architectural or other considerations limit the design or furnishings so that a correct condition is not attained, no matter what the number in attendance. Under such circumstances, recourse must be had to a modification of the materials used as an interior finish.

Corrective Materials. The most common method of producing a sufficient degree of absorption is to place upon portions of the walls or ceiling a certain amount of felt of an extent so chosen as to provide the requisite absorbing power for sound. There are various kinds of felt on the market, but, of these, two have been found to be especially suited to this class of work. One is a yellow jute felt such as is used for saddle lining, and the other is a special type of hair felt with gauze reënforcement and freed from the usual impurities found in cattle hair. Both of these materials are efficient absorbers of sound. As in all substances, the degree of absorption varies with the pitch of the sound. Both grades carry a low percentage of oil, are durable, vermin-proof and non-inflammable, a combination of qualities in conjunction with their high absorbing power which is not to be found in most other felt and which, therefore, renders them particularly suitable for acoustical requirements.

Such surfaces as receive the felt treatment must afterward be covered and protected with a decorative fabric or membrane, and this fabric must be chosen with care in order that it may not too greatly detract from the absorbing power of the felt beneath. The use of a painted membrane or simply a dyed cloth is an important question as the absorbing power of the treatment depends on this factor both in absolute amount and variation with the pitch. Ordinary paints diminish the absorption considerably but special fabric coatings have been devised which affect it only to a slight extent. In many cases, beautiful effects can be obtained by covering the felt with tapestry hangings or painted cloth panels of similar design, such as were used in the Little Theatre of New York and the great hall of the Harvard Club of Boston. In all cases the form and manner of decoration must be studied with relation to the architectural and acoustical requirements of the individual problem.

The location of treatment with such absorbing materials is of prime importance, not only because their efficiency in reducing reverberation depends on their receiving the major portion of the reflected waves of sound, but also on account of certain phenomena of localized effect to be discussed presently. A careful study is therefore necessary in all cases to determine the extent and location of those areas best suited to an effective treatment, both from an acoustical and an architectural standpoint.

An important contribution has recently been made to acoustical science in the development of two patent materials of structural character suitable for the interior finish of new buildings and having a high degree of absorp-

tion comparable in efficiency to felt of equal thickness. One is a ceramic tile and the other is an artificial stone. Both are manufactured in such a way as to produce intercommunicating pores of uniform size which give the maximum sound absorption. These materials are not plastic, but must be moulded and set in mortar as a masonry finish. They are especially adapted to tile arch construction, and on account of their combination of acoustical, fireproof, and structural qualities furnish new and useful possibilities in architectural design and construction.

Sounding-Boards. The question is sometimes asked as to the value of a sounding-board in improving acoustical conditions. Such a device, if properly designed and placed, causes a slight reduction in the amount of reverberation when a speaker stands beneath it, as it casts a certain amount of sound shadow on the ceiling, thus confining the sound in some degree to the lower portion of the auditorium. In this way by intensifying the sound reaching the audience, it has its maximum effect, rather than in the slight reduction in reverberation. The best form of sounding-board is a plane surface, hung horizontally near the speaker's head, and of as large extent as is consistent with appearance, the object being to subtend as large an angle as possible at the speaker's mouth. The use of parabolic sounding-boards is to be deplored, as they not only produce unpleasant focusing effects but are also most unsightly. In any case, the slight advantage to be gained by the use of a sounding-board hardly compensates for its expense and appearance.

Effects of Reverberation. The phenomenon of reverberation, besides causing overlapping of syllables with consequent blurring, also prolongs and intensifies any sounds entering from outside or caused by shuffling of feet, coughing, or general restlessness on the part of an audience. The noise from such sources may, in a reverberant room, be entirely sufficient to obliterate a speaker's voice. This is another reason for reducing the reverberation, even though under quiet conditions the speaker can be heard with a fair degree of comfort.

In the case of offices and banking-rooms, especially those of modern construction, the accumulation of sound energy, due to the reverberation of noises from typewriters, adding machines, telephone bells and the like, is so great as not only to be annoying but actually responsible for nervous fatigue and loss of efficiency of the employees. The same phenomenon is also to be observed in restaurants, corridors of public buildings, and similar places. An astonishing degree of quiet can be produced in all such cases by suitable absorptive treatment. Not only is the sound generated in such rooms lessened in intensity to a marked degree, but also that coming through doors and windows, such as the noise of traffic. A few decades ago such problems commanded but little attention, but modern office machinery and the hard and non-absorptive materials used in fireproof construction have conspired to make the ordinary business office almost as noisy as the proverbial boiler-shop. The increase in errors and the loss of efficiency on the part of the clerical forces due to this nerve-shattering racket are facts now being considered by the welfare departments of many of the most progressive business houses.

Echo. While reverberation is doubtless the most frequent and easily recognized acoustical defect, yet there are other phenomena which may be quite as troublesome, chief among these being echo and interference.

Echo is due to reflection from those surfaces whose contour and arrangement are such as to bring the sound-waves to a focus. If the source of sound is short and sharp, and if the difference in path between the reflected and direct waves is sufficiently great, the image produced by the reflected wave appears as a distinct repetition of the original sound. If, however, the difference of path is such that the direct and reflected waves are not separated but overlap on reaching the ear, or if the contour of the reflecting surfaces is such as to produce a blurred and not a sharp focus, confusion is created at that point and hearing made difficult. Such effects are purely local in their character and are not general throughout the auditorium as in the case of reverberation. They, in common with true interference phenomena, are responsible for the "dead spots" of which complaints are so often heard.

Echo of both types is caused in a large degree by curved surfaces such as domes, vaults, coves, pendentives, and warped areas. It can often be eliminated by due care in design, either by proper choice of curvature or by deep coffering. Sometimes a special form of absorptive treatment becomes necessary, the absorbent areas being so distributed as to produce half-wave phase differences between different portions of the reflected wave, thus causing destructive interference at the focal point.

Resonance and Interference. Distinct from the reflection phenomena thus far considered, there exist more complex sources of difficulty which may, in general, be classed under the heads of resonance and interference. By resonance we mean the sympathetic vibration of the body of air within a room in response to some definite pitch. Its effect is to magnify the intensity of the given sound, so that the latter is thrown into relief against all other tonalities, thus producing an unbalanced effect on musical values. It is frequently encountered in organ chambers, and sometimes even in the auditoriums themselves.

A more frequent source of trouble is to be found in difficulties arising from interference. When a sustained tone of constant pitch is produced in a room, the waves reflected from various surfaces meet one another and the oncoming wave in various phase relations, producing points of maximum or minimum loudness, according as the waves meet in the same or opposite phases. Such regions may be readily observed in a church by walking about the auditorium while a single note is sustained on the organ. The points of maximum loudness will shift their location as the pitch of the note is changed, and this becomes an important factor for consideration in the proper voicing of an organ. Such effects produce, as a rule, but little disturbance for speech, but may be very disturbing for music whenever tones are sustained for more than one-tenth of a second. The effects are complex and require individual study in every case which arises.

In résumé, the acoustical quality of an auditorium depends on shape, size, and material. If two of these three factors are determined, the desired acoustical result can be secured only by correspondingly adapting the third. In the completed building, or with plans in which the form is fully determined by other considerations, the adjustment must be by the material, its quality, and its efficient position.

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